

TRANSPORTATION COMMITTEE WORKSHOP  
BEFORE THE  
CALIFORNIA ENERGY RESOURCES CONSERVATION  
AND DEVELOPMENT COMMISSION

In the Matter of: )  
 )  
Updating Greenhouse Gas Inventory )  
Produced by Electricity Generated )  
Out of State )  
\_\_\_\_\_ )

CALIFORNIA ENERGY COMMISSION  
HEARING ROOM A  
1516 NINTH STREET  
SACRAMENTO, CALIFORNIA

WEDNESDAY, JUNE 7, 2006

1:41 P.M.

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PETERS SHORTHAND REPORTING CORPORATION (916) 362-2345

COMMISSIONERS PRESENT

James D. Boyd, Presiding Member

Jackalyne Pfannenstiel, Associate Member

John Geesman, Commissioner

ADVISORS PRESENT

Timothy Tutt

Melissa Jones

STAFF PRESENT

Al Alvarado

Gerry Bemis

Susan Brown

Karen Griffin

Angela Tanghetti

Grace Anderson

ALSO PRESENT

Ash Lashgari  
California Air Resources Board

Devra Wang  
Natural Resources Defense Council

Mike McCormick  
California Climate Action Registry

Steven Kelly  
Independent Energy Producers Association

J. Richard Lauckhart  
Global Energy Decisions

ALSO PRESENT

Obadiah Bartholomy  
Sacramento Municipal Utility District

Curtis A. Hatton  
Pacific Gas and Electric Company

Jasmin Ansar  
Pacific Gas and Electric Company

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## I N D E X

	Page
Proceedings	1
Introductions	1
Opening Remarks	1
Presiding Member Boyd	1
Workshop Overview	3
Greenhouse Gas Inventory Context	5
Overview, CEC Staff Paper: Proposed Methodology to Estimate Generation Resource Mix of California Electricity Imports	12
Public Comments/Questions	67
A. Lashgari, Air Resources Board	67
D. Wang, Natural Resources Defense Council	70
M. McCormick California Climate Action Registry	73
S. Kelly, Independent Energy Producers	75
R. Lauckhart, Global Energy Decisions	80
O. Bartholomy, Sacramento Municipal Utility District	83
C. Hatton, Pacific Gas and Electric Company	87
J. Ansar, Pacific Gas and Electric Company	89
G. Anderson, CEC Staff	90
Closing Remarks	100
Adjournment	100
Certificate of Reporter	101

1 P R O C E E D I N G S

2 1:41 p.m.

3 PRESIDING MEMBER BOYD: Well, good  
4 afternoon. Sorry to keep you all waiting, but  
5 when a legislator has you on the phone you just  
6 talk until they're done, so that delayed me a  
7 little bit.

8 I'd like to welcome you all to this  
9 Transportation Committee workshop on updating the  
10 greenhouse gas inventory, and that inventory  
11 created by emissions from electricity generated  
12 out of state.

13 As you have all learned over the years  
14 the Transportation Committee oversees the climate  
15 change program, even though there is no longer  
16 much of a connection between electric  
17 transportation and greenhouse gases.

18 But in any event, we're happy to see you  
19 folks here and participate in this with us. On my  
20 left is the other Member of the Transportation  
21 Committee of the Energy Commission, Commissioner  
22 Pfannenstiel. And to her left is her Advisor, Tim  
23 Tutt. And I'm glad to welcome Commissioner  
24 Geesman, who is the sole standing Member of the  
25 Electricity Committee these days, and has an

1       obvious interest in this subject, and his Advisor,  
2       Melissa Jones.

3               So, the purpose of the workshop, as  
4       you've all learned from the hearing notice, of  
5       course, is to review public information, to  
6       receive public information and comments on the  
7       staff paper that proposed a method for dealing  
8       with estimates of the resource mix of electricity  
9       imports.

10              The whole idea of this is to support and  
11       advance the analytical methodologies, I guess I'll  
12       call them, for developing an inventory of  
13       greenhouse gas emissions from this sector. The  
14       Committee and the staff have felt we need a better  
15       understanding of the electricity system and the  
16       related market activities to be able to develop  
17       effective programs that are intended to address  
18       global climate change concerns.

19              And, of course, today's workshop falls  
20       right in the footsteps of yesterday's last meeting  
21       of the Governor's Climate Action Team, a public  
22       hearing on the recommendations of the report to  
23       the Governor, and particularly looking at the  
24       electricity sector. So I recognize some of the  
25       faces in the audience here from being faces in the

1 audience yesterday. So, serendipitous timing on  
2 our part here, I think.

3 But nonetheless, you can see what kind  
4 of priority the issue of greenhouse gas emission  
5 controls in California, and what role the  
6 electricity plays in that, is deemed fairly  
7 important to a lot of agencies, and to the  
8 Administration.

9 So, with having said all of that, I'll  
10 ask my fellow Commissioners if either of them  
11 would like to make any remarks.

12 And with that, Al, I'll turn it over to  
13 you and you'll provide us all an overview of the  
14 workshop and take care of running this for me  
15 today, thank you.

16 MR. ALVARADO: Sure, I'll do that. Good  
17 afternoon; welcome to today's workshop. My name's  
18 Al Alvarado; I'm with the Electricity Analysis  
19 Office here at the Commission. The Electricity  
20 Analysis Office is basically the analytical unit  
21 in the Commission that analyzes electricity system  
22 and market issues, related issues.

23 The purpose of today's workshop is to  
24 receive public comments on the staff paper that  
25 was posted two weeks ago titled, proposed

1 methodology to estimate the resource mix of  
2 California electricity imports.

3 Before I move forward I just wanted to  
4 touch on a few housekeeping items. This workshop  
5 is being webcast to allow parties to follow  
6 today's discussion remotely. The staff paper,  
7 this PowerPoint presentation and filed comments  
8 have already been posted on the website for folks  
9 to follow along in our discussion today.

10 We also have a call-in number if you  
11 wish to provide comments during this workshop.  
12 And I have it on, it should be posted on the web  
13 right now. And if you do wish to participate  
14 throughout the workshop the call-in number is 888-  
15 455-9639. And when the operator answers please  
16 give the passcode, which is greenhouse gas and my  
17 name is the workshop call leader.

18 If you are on a phone line and you're  
19 just listening in, please keep your phones on mute  
20 because all outside noise does come through the  
21 conference call.

22 We are transcribing the workshop today  
23 just to make sure that we adequately capture any  
24 comments that any of you provide. So, if you wish  
25 to speak please identify yourselves for the



1 record. The transcripts, when ready, will be  
2 posted on the website.

3 For today's agenda I was going to turn  
4 an opening comments to provide context of this  
5 staff effort and dealing with electricity imports  
6 into context with the global climate change  
7 inventory, to ask Gerry Bemis to provide that.

8 And then I was going to go into an  
9 overview of the staff paper that we presented and  
10 posted a couple weeks ago.

11 After my presentation then I sure would  
12 like to just open this up to a good, informal  
13 discussion, you know, the purpose here is to hear  
14 from you. And I'd like to hear any comments, any  
15 suggestions that we could use to modify or improve  
16 the proposed methodology.

17 So, with that, I'd like to introduce  
18 Gerry Bemis.

19 MR. BEMIS: Good afternoon, everybody.  
20 I'm the one who's responsible for actually  
21 preparing the greenhouse gas emissions inventory;  
22 and I would like to say I really appreciate the  
23 effort of the electricity office to help us to get  
24 a better handle on out-of-state emissions of  
25 greenhouse gases.

1           Today's workshop is intended to develop  
2           a process to provide objective technical  
3           information for decisionmakers. The focus is upon  
4           the types of fuels used to generate out-of-state  
5           electricity for consumption in California. And  
6           future efforts will expand this to include the  
7           amounts of each type of fuel used, and the  
8           corresponding greenhouse gas emissions.

9           I'm in the process of updating the  
10          greenhouse gas emissions inventory through the  
11          year 2004. I expect to have draft results  
12          available by late summer of 2006. I want to state  
13          that the emissions inventory needs to have a  
14          consistent methodology to apply from 1990 forward  
15          to the present.

16          And with that I'll just provide that as  
17          a context. Basically focusing on what are --

18               COMMISSIONER GEESMAN: Gary, I have a  
19          question.

20               MR. BEMIS: Yes.

21               COMMISSIONER GEESMAN: This probably  
22          touches on the interests of a variety of other  
23          western states, and I know Governor Schwarzenegger  
24          has attempted to initiate certain common policies  
25          through the Western Governors Association. And I

1 believe our climate change activities, to some  
2 extent, have been coordinated with efforts in  
3 Washington State and Oregon State.

4 Is this development of methodology being  
5 coordinated with any of the other states?

6 MR. BEMIS: That's really a question for  
7 Al to respond to, because I'm really looking at  
8 overall inventory. And this is a component of  
9 that. I don't know to the degree which other  
10 states have been involved in this, personally.

11 PRESIDING MEMBER BOYD: You got a  
12 comment, Al? Now that you've been put on the  
13 spot.

14 MR. ALVARADO: We haven't really reached  
15 out to any of the other out-of-state parties at  
16 this point. We have had discussions with the  
17 Northwest Power and Conservation Council seeking  
18 some of their input since the northwest system is  
19 a major component that does sell electricity into  
20 California.

21 So at least there has been some staff-  
22 to-staff efforts to discuss analytical approaches  
23 to try to analyze what is the mix of imports  
24 coming to California. These are just preliminary  
25 discussions and it's something that we would like

1 to follow up with.

2 COMMISSIONER GEESMAN: Yeah, I'm more  
3 focused on the greenhouse gas side than the  
4 electricity side with that question. And I  
5 wonder, the New England States are also attempting  
6 a regional approach to these issues. Have we  
7 looked at whatever methodologies they've  
8 developed, or are discussing, to handle interstate  
9 allocations?

10 MR. ALVARADO: The only thing I can  
11 respond to that by saying that I know that they  
12 are looking at it, and they're concerned about  
13 what they call leakage of emissions outside of  
14 their boundaries of their area.

15 And when they talk about that they say  
16 we're going to monitor that, that we think it's  
17 important and we're going to monitor it. And if  
18 it becomes a problem we'll do something about it.  
19 But they haven't really prescribed a solution to  
20 it.

21 COMMISSIONER GEESMAN: And then it would  
22 occur to me that the European Union must also face  
23 some of these accounting questions as it relates  
24 to how to allocate emissions to generating plants  
25 spread across multiple jurisdictions. Has that

1       experience provided any insight into our  
2       consideration of different methodologies here?

3               MR. ALVARADO:  I'm not aware of anyone  
4       looking at -- I have not personally looked at  
5       what's happening in Europe to see if there's a  
6       methodology we could apply here.

7               And I've really focused on, like I said,  
8       the inventory, itself; not on -- this is just, for  
9       me, one component of the inventory, maybe 10  
10      percent.  But not the bulk of it.

11              And I have not looked at the European  
12      situation personally.  I think Pierre might have,  
13      but I have not.

14              COMMISSIONER GEESMAN:  So, --

15              PRESIDING MEMBER BOYD:  I -- excuse me,  
16      go ahead.

17              COMMISSIONER GEESMAN:  Pierre, do you  
18      want to get into this?

19              PRESIDING MEMBER BOYD:  Yeah, I was  
20      about ready to say, I see two faces in the --  
21      oops, where'd Susan go?  I was looking -- oh,  
22      there you are.  I was going to ask Pierre or Susan  
23      if they wanted to add any comments.  First, maybe  
24      Pierre, if you have any.  I know you're very  
25      familiar with RGGI, Pierre.  I just don't know how

1 deep into RGGI we've gone in terms of  
2 methodologies. And, Susan, of course, is managing  
3 the project with the two western states and  
4 California. And I don't know to what extent  
5 you've looked into the inventory question. These  
6 are good questions, by the way, I'm glad that  
7 Commissioner --

8 MS. BROWN: These are all excellent  
9 questions, Commissioner Geesman. I can assure you  
10 that there's a commitment, at least through the  
11 West Coast Governors global warming initiatives to  
12 move toward consistent methodologies. And the  
13 out-of-state power issue is a very live issue.  
14 We're actually -- B.B. Blevins and I have a call  
15 with Washington and Oregon tomorrow, so I will be  
16 sure and raise the issue.

17 I think they would look to us for  
18 guidance on how to do the accounting. My  
19 impression in dealing with other states is that  
20 they have a very rudimentary process. We're  
21 really digging in deep on the out-of-state power  
22 issue and I think that they would be happy to have  
23 our input on how to refine the data they're  
24 already collecting.

25 So I think that's about it. With

1       respect to the regional greenhouse gas initiative,  
2       the nine northeastern states are in the process of  
3       adopting model rules and are, I would say, not yet  
4       at a point where they can accurately describe the  
5       kind of data needs they're going to have. They're  
6       really in a regulatory process right now to adopt  
7       rules specific to the power sector.

8               COMMISSIONER GEESMAN: Well, the concern  
9       I have is that in a multilateral context it would  
10      be unfortunate if our efforts were construed as we  
11      came up with a better way to do this, and, you  
12      know, we took some unilateral action. And as a  
13      result we reduced our carbon footprint by 6  
14      percent, and the rest of our multilateral partners  
15      will be the ones that absorb the difference.

16             It seems to me that just from an  
17      interstate relations perspective we'd want to make  
18      certain that everybody knew what was going on.

19             MS. BROWN: Well, there are a number of  
20      us involved with coordination with other states  
21      from different venues, certainly the Western  
22      Governors Association, the Chairman's Office. I'm  
23      working with B.B. Blevins on Oregon and  
24      Washington. I have Cynthia Praul -- Grace  
25      Anderson's in the back of the room and she's done

1 a lot of work with the other states specifically  
2 to the issue of renewable energy and how that  
3 counts.

4 So, you're absolutely correct, we need  
5 to do a better job of working with our partners on  
6 this very important issue. And I'm certainly --

7 COMMISSIONER GEESMAN: I have to presume  
8 that others, either in New England or in the EU,  
9 have confronted similar questions. And we might  
10 be able to gain some guidance by looking more  
11 closely at their experience.

12 MS. BROWN: Your point is extremely well  
13 taken. Thank you.

14 MR. ALVARADO: Thank you, Gerry. As  
15 part of my presentation what I was going to go  
16 through -- go over today is just provide, touch  
17 upon the purpose of why we're engaged in this  
18 effort to try to better understand the resource  
19 mix of electricity imports. Touch on the existing  
20 methodology and the limitations of methodology  
21 that we actually have been using over the last  
22 several years.

23 And to provide some contacts. I also  
24 wanted to provide a general overview of the role  
25 of electricity imports to California as part of



1 its full resource mix, electricity supply to meet  
2 electricity demand in California. And lastly,  
3 I'll touch upon the proposed approach to estimate  
4 the resource mix of imports.

5 As Gerry indicated the Commission has a  
6 responsibility of developing and updating the  
7 greenhouse gas emission inventory. The latest  
8 version was published last June and it covers  
9 estimates between 1990 and 2002. And as Gerry  
10 indicated, he wants to update those estimates, I  
11 believe through 2004.

12 We believe that there are some problems  
13 with the methodology that's been used, and so  
14 we're engaged in this effort to at least attempt  
15 to improve the methodology for estimating the GHG  
16 emissions associated with electricity imports.

17 We've also seen that there's been a  
18 number of different resource mix estimates over  
19 this past year which is adding to this confusion  
20 about well, what is actually coming over the main  
21 transmission lines into California.

22 Part of the goal of the staff effort is  
23 to capture both the market dynamics of typical  
24 electricity purchase transactions, as well as the  
25 dispatch decisions as generally applied to

1 generation throughout the west.

2 And we also hope to develop some  
3 consistency with other Commission studies and  
4 reports. For example, the Energy Commission also  
5 publishes the Net System Power Report, which  
6 identifies generation that occurs within  
7 California and an estimate for imports out of  
8 state, and those estimates use even a different  
9 methodology that Gerry has used for his past  
10 greenhouse gas inventory. So it's another over-  
11 arching goal is to try to achieve some sort of  
12 consistency.

13 MS. JONES: Al, I've got a question.

14 MR. ALVARADO: Sure.

15 MS. JONES: In terms of the fourth, or  
16 the third bullet that you've listed, properly  
17 represent actual generation dispatch decisions. I  
18 guess my question is are we really looking at  
19 actual dispatch or are we looking at model  
20 dispatch.

21 MR. ALVARADO: Well, we do have  
22 information on how many of the plants throughout  
23 the west are dispatched on an hourly basis. You  
24 know, that information is reported under the SIMS  
25 database. So we do examine how many of these

1 plants are dispatched.

2 But we also use some simulation tools to  
3 help us understand how the system could be being  
4 dispatched and try and identify which resources  
5 are likely on the margin that could be serving  
6 most of the wholesale power market in the west.

7 So, it's a combination of both, really.

8 MS. JONES: And then I have another  
9 question. You mentioned that you think that the  
10 existing approach that we use overestimates the  
11 amount of actual deliveries. Can you better  
12 describe how that overestimation occurs?

13 MR. ALVARADO: Well, yes. I wanted to  
14 get into more, as I move along over here, to --

15 MS. JONES: That's fine.

16 MR. ALVARADO: -- describe it, because  
17 some of the elements that we're trying to address  
18 is the difference between how baseload, large  
19 baseload facilities are dispatched throughout the  
20 west compared to what likely or could be the  
21 marginal resources that's actually serving the  
22 wholesale power market.

23 And some of the baseload facilities  
24 throughout the west are -- a good number of those  
25 are coal plants; there's nuclear baseload plants,

1 and then there's a whole goldrush of new gas-fired  
2 facilities, too. And the emissions associated  
3 with each of those facilities is going to be  
4 different.

5 So what we're trying to develop here is  
6 an attribute of each of those generation  
7 facilities, what is being sold in the market and  
8 likely or possibly delivered to California.

9 Part of the problem we have here is the  
10 availability of data to actually track imports.  
11 What we've discovered is with time they're  
12 reporting information on generation, fuel use,  
13 utility transactions and imports have really  
14 changed over the years. I'd say back in the 1990s  
15 when I was working on out-of-state power issues  
16 there was a lot more transaction type information  
17 that was reported that we were able to get a  
18 better handle on what was going on with the  
19 imports.

20 Today we have several different  
21 information sources that helps us build a little  
22 piece -- each adds a little piece to the puzzle  
23 and helps us build a bigger picture of what's  
24 going on with imports.

25 We do have the control operators report

1 meter power flows between California and other  
2 out-of-state control operators. This information  
3 represents imports and exports through the main  
4 interties connecting California and the rest of  
5 the west. Unfortunately this information is not  
6 tied to any specific transaction or generation  
7 source. It's really just what's metered at the  
8 main injection points in California.

9 If power's flowing into California one  
10 hour, that's recorded. At times electricity is  
11 flowing the other way, going out of state. And  
12 that information is reported to us. We also --

13 COMMISSIONER GEESMAN: Your paper,  
14 though, Al, says that you don't have that  
15 information for the southwest imports.

16 MR. ALVARADO: What I indicated, in the  
17 paper I have two charts. I have several charts on  
18 transmission power flows. What we do have in  
19 terms of the northwest power flows is what  
20 Bonneville Power reports; and they actually have  
21 hourly metered flows that they actually post on  
22 the website.

23 We don't have a comparable hourly data  
24 set for the power flows in the southwest power  
25 link. However, what we do have is what's reported

1 to us every quarter by the control area. So it's  
2 aggregated data information in terms of these  
3 overall power flows between control areas.

4 COMMISSIONER GEESMAN: Is that an  
5 aggregation of hourly flows, or is it simply a  
6 quarterly total?

7 MR. ALVARADO: My understanding it's an  
8 aggregation of the hourly flows. I mean, I'm  
9 assuming the control operator will record how much  
10 power comes in each hour. And then also will  
11 total up how much power is flowing the other way.  
12 So we have both metered flows into California, as  
13 well as the metered flows going outside.

14 COMMISSIONER GEESMAN: But we don't have  
15 the 8760?

16 MR. ALVARADO: No, we do not have that  
17 information. And we were really relying on  
18 Bonneville Power to at least look at the power  
19 flows on the Pacific Intertie, both the DC and AC  
20 lines. And it gives us an interesting pattern of  
21 the types of transactions that occur between  
22 California and the northwest.

23 The other information sources we have  
24 available to us is electric generation and fuel  
25 use by power plant; and that's reported not only

1 in California, but it's reported for, I believe,  
2 all other power plants throughout the west.

3 Shortfall again is we don't know exactly  
4 where this generation is going to, who's it really  
5 serving. But at least we have an understanding  
6 about the actual generation, the fuel use, and we  
7 can estimate the associated GHG emissions with  
8 that, so we can know what's going on at each  
9 plant. And tally up what's going on within the  
10 generation in California.

11 Another source of information is the  
12 power source disclosure program where the LSEs  
13 report to the Energy Commission the fuel mix  
14 associated with any contracts that they have. I  
15 understand that out of all the power source  
16 disclosure that represents about 70 percent of the  
17 total generation in California.

18 The LSEs can either identify the fuel  
19 source, if they have that information available,  
20 for each transaction. Or at times they also  
21 report, they could report that some of their  
22 electricity sources is just a system purchase,  
23 which is part of the big pocket of generation.

24 FERC also has an electronic quarterly  
25 reporting system and all LSEs and generators do

1 report their sales. We're only sort of scratching  
2 the surface in terms of trying to understand what  
3 information is available there.

4 I looked at one month and found  
5 thousands and thousands of transactions. And, you  
6 know, just as an example, I was trying to see what  
7 PowerExcel's and BC Hydro, and try to get a sense  
8 who they sell, and try to see if I can glean some  
9 information to see how much is coming to  
10 California. But, you know, electricity is sold so  
11 many times in the market it really is difficult to  
12 try to follow the thread of one transaction to the  
13 other, and pinpoint exactly what the power source  
14 actually is.

15 So, the bottomline is that we do have  
16 very limited information on generation source of  
17 electricity imports, which brings us to the reason  
18 why we're examining different methodologies to  
19 estimate the resource mix. I mean the bottomline  
20 is it does come down to an estimate. There's very  
21 little hard information that can actually tell us  
22 what's going on in those power flows.

23 The existing methodology that's used for  
24 the GHG emission imports inventory first  
25 identifies what's known imports from known



1 sources. So California does -- a number of  
2 California utilities do own shares at different  
3 generation of facilities located out of state, and  
4 there's also some contracts, at least I know of  
5 two contracts that are tied to specific  
6 facilities.

7 So, I believe what Gerry does is he,  
8 with the assistance of the electricity analysis,  
9 is he identifies that amount first. Since we also  
10 know what the overall flow is into California you  
11 subtract the known imports with the overall  
12 imports and that gives us the system purchases,  
13 which is what we're trying to identify.

14 What has been done for the 1990-1999  
15 import estimates, I believe, Gerry, you used the  
16 1994 Electricity Report findings. At that time we  
17 had conducted a number of system studies, and back  
18 then we did try to understand what was the  
19 resource mix, you know, what was the dynamics of  
20 the market.

21 And back then the assumptions that we  
22 found was from the northwest approximately 80  
23 percent of the imports from the northwest were  
24 from hydro resources; and the balance was coal.

25 I believe most of the imports back in

1 the early '90s from the southwest was coal, coal-  
2 based, since there was a large surplus of  
3 generating capacity back then.

4 From the year 2000 to present the GHG  
5 emission estimates were actually based on the  
6 average generation mix in both the northwest and  
7 the southwest. It's been several years since  
8 we've actually engaged in a system analysis and  
9 try to evaluate the resource mix. And for the  
10 lack of better information this averaging approach  
11 has been used.

12 This averaging approach was also used in  
13 the net system power reports that we've been  
14 publishing since 1997. The main difference  
15 between the net system power report and the  
16 inventory is that the net system power report  
17 applies this average to all the imports, as  
18 opposed to what the inventory does is try to first  
19 capture what we believe are the foreign imports.

20 COMMISSIONER GEESMAN: And what's the  
21 methodology used by the LSEs in their power source  
22 disclosures?

23 MR. ALVARADO: I actually -- I wouldn't  
24 really know. I've examined some of the filings  
25 and I see that there might be an LSE that has a

1 contract with a certain party. And they have  
2 assigned a fuel mix to that. I'm really not sure  
3 how they can really tell what a generator is  
4 actually providing as part of that contract since  
5 I know the generators do, themselves, buy and sell  
6 in the market every day, depending on prices.

7 So I can't speak for what occurs with a  
8 utility, the LSE filings. But we do examine  
9 those. And at least that's one good source that  
10 we have available.

11 COMMISSIONER GEESMAN: But we don't  
12 prescribe the methodology that they have to use?

13 MR. ALVARADO: No. It's really up to  
14 the LSE to decide whether if they can identify the  
15 resource mix. And if they don't have information  
16 to support that information some LSEs just claim  
17 that the majority of their electricity supplies  
18 are from system purchases.

19 COMMISSIONER GEESMAN: And then on  
20 system purchases do they attribute a fuel type to  
21 that?

22 MR. ALVARADO: No, that's what they rely  
23 on the Energy Commission net system power  
24 report --

25 COMMISSIONER GEESMAN: Okay.

1                   MR. ALVARADO:  -- to identify that fuel  
2                   mix, which uses this averaging methodology.

3                   COMMISSIONER GEESMAN:  Yeah.

4                   MR. ALVARADO:  And just to give a  
5                   snapshot, an example of like what the net system  
6                   power report actually calculates, these are the  
7                   import estimates for 2005.  And another difference  
8                   of what the net system power report includes,  
9                   compared to what we're now trying to distinguish,  
10                  is it reports the net imports.

11                  What we're proposing to do now is to  
12                  actually identify all imports and not subtract out  
13                  the exports at this point.  We really want to just  
14                  get a better snapshot on all the power that's  
15                  coming into California.

16                  In the northwest, at least for 2005,  
17                  approximately 64 percent of the actual electricity  
18                  generation that occurred in that region was hydro-  
19                  based.  So we assume that the power that's metered  
20                  coming into the interties was the prescribed 64  
21                  percent hydro.

22                  In the southwest, 58 percent of the  
23                  generation in that whole region was coal, so 58  
24                  percent of that generation coming in over the  
25                  interties was assumed to be coal-based.

1           We do think that there are problems with  
2           the existing approach. We do think that when you  
3           average the generation mix and assume it's coming  
4           over the interties, it doesn't really capture the  
5           type of transactions that actually occurs day by  
6           day in the market.

7           And it also doesn't really capture the  
8           types of dispatch decisions that will occur  
9           between generators and utilities that do own  
10          generation.

11          So this is the point, Melissa, that I  
12          was talking about. We do think that it overstates  
13          the estimates of actually the emissions associated  
14          with the imports. When we average we assume that  
15          a lot of that baseload generation was actually  
16          flowing into California, whereas what we do know  
17          typically occurs within the utilities that own  
18          generation is they will dispatch their cheapest  
19          resources first to serve their customer loads. If  
20          there any surplus capacity available, they will  
21          then sell it to the market.

22          So, it's a matter of attribution that  
23          we're trying to address here. So, the proposed  
24          methodology is intended to resolve some of these  
25          problems.

1           The types of imports that do come into  
2       California, we have a different variety of types  
3       of transactions. The one that can be best  
4       defined, that we can best identify, is the  
5       ownership shares of generation located out of  
6       state. As I indicated earlier, some utilities do  
7       own shares of some of these facilities. There's  
8       ownership in shares in Intermountain Power;  
9       there's Palo Verde; facilities like that. And it  
10      turns out the majority of the California LSEs that  
11      own those shares of facilities are mostly  
12      municipal utilities.

13           There's also long-term contracts that  
14      some LSEs will have with out-of-state facilities.  
15      There is a San Diego contract with the Boardmen  
16      Coal facility in the northwest, and we try to  
17      identify items like that.

18           In terms of entitlements, some cities  
19      have entitlements to power coming from the Hoover  
20      facility, and so these are elements that at least  
21      there's information of actual generation from  
22      these facilities. We also know the ownership  
23      shares of that generation.

24           You'll also have LSEs and generators  
25      that will purchase power to satisfy some of their

1 customer obligations. ESPs, for example, will  
2 purchase from I guess the whole western market, in  
3 part to satisfy their customer loads. LSEs or  
4 generators will also purchase to cover unexpected  
5 short-term variations on a day-by-day market.  
6 There'll be unexpected forced outages or you might  
7 find a hotter day than expected, and so projected  
8 demand ends up falling far short of what's  
9 actually occurring. So, marketers, LSEs,  
10 generators will purchase in the market to make up  
11 for that shortfall.

12 Another category that, actually I  
13 haven't heard this term used in quite awhile, is  
14 economy purchases. And what I mean by economy  
15 purchases is that could be an LSE or a generator  
16 will purchase power on spot market, on the daily  
17 market, hour-by-hour, day-by-day, a week ahead, if  
18 it turns out that the market prices are actually  
19 cheaper than what it costs to generate from their  
20 own facilities.

21 So, a generator may find one day that  
22 might be definitely cheaper to buy power and ramp  
23 down their generation or one facility, even though  
24 they have a contract obligation. All that an LSE  
25 might see is the amount of electricity is

1 delivered, associated to the contract.

2 ASSOCIATE MEMBER PFANNENSTIEL: Al, just  
3 before we -- back up a couple bullets, I'm sorry.

4 MR. ALVARADO: Um-hum.

5 ASSOCIATE MEMBER PFANNENSTIEL: I'm  
6 assuming that the first two bullets, that your  
7 model assumes that the amount of electricity  
8 associated with those two bullets, the ownership  
9 and the contracts and entitlements, that we know  
10 how much electricity from what source for those  
11 two. That's kind of -- we take that as a given?

12 MR. ALVARADO: We are taking that as a  
13 given; and there are, I think, just a few  
14 potential shortfalls with that, too. I can get  
15 into that in awhile.

16 ASSOCIATE MEMBER PFANNENSTIEL: Right,  
17 okay. But then the others, the other four are  
18 certainly the great unknown, and that's what we're  
19 trying to get back into the estimate, is that  
20 correct?

21 MR. ALVARADO: Right, yes. And I'm just  
22 trying to add a little context in terms of, you  
23 know, what is the nature of the transactions  
24 associated with that power coming through  
25 California -- to California.



1           ASSOCIATE MEMBER PFANNENSTIEL: Right,  
2           and I'm seeing that. I'm just looking at the  
3           first two as being kind of completely different  
4           type of question mark around them. I mean there  
5           is some uncertainty obviously in any given year,  
6           whatever the contract might be, or the ownership  
7           share of the generation. But the other four seem  
8           to me to be, from what you've said, that's what  
9           we're trying to get?

10          MR. ALVARADO: Yes.

11          COMMISSIONER GEESMAN: How would you  
12          allocate those bottom four among the different  
13          types of LSEs in California?

14          MR. ALVARADO: Well, that's getting into  
15          the next phase, you know. Right now I'm trying to  
16          take a look at the statewide total. The next  
17          phase we'll try to examine, you know, what  
18          actually occurs with each of the LSEs and their  
19          transactions. You know, we do have limited  
20          information, too, on the types of transactions.

21          COMMISSIONER GEESMAN: I guess what  
22          throws me off is the reference in your paper to  
23          Semptra's ESP where they apparently reported to you  
24          that 29 percent of their fuel mix was from coal.  
25          But the logic of your modeling would suggest that

1       that seems counterintuitive. That, in fact,  
2       following your model they'd be much more heavily  
3       natural gas oriented than that.

4               I'm trying to determine, are they an  
5       outlyer, or do the other ESPs, for perhaps  
6       competitive purposes, all ultimately emulate a  
7       strategy like that. Or do the municipal utilities  
8       make up a larger proportion of these bottom four,  
9       or a smaller proportion?

10              MR. ALVARADO: Commissioner Geesman,  
11       those are actually very good questions. What I  
12       reported, the information related to the Sempra  
13       ESP is pretty much what they reported to us. I  
14       really have no sense of what is the nature of  
15       their actual contracts that allows them to  
16       identify that fraction, I mean if there is more  
17       information on the actual contract activity that  
18       would assist us in adding more accuracy in the  
19       total here.

20              COMMISSIONER GEESMAN: Yeah, that may be  
21       like counting grains of sand in the desert,  
22       though. I mean I don't know how to work through  
23       the dilemma.

24              MR. ALVARADO: I agree. The last type  
25       of imports and exports that does occur is wheeling

1 through California, where you might have a power  
2 sale from the northwest that was expected to be  
3 delivered to a Las Vegas load, and they come  
4 through the transmission system in California.

5 Exactly how much I can't really -- don't  
6 have information to be able to quantify how many  
7 of those type of transactions actually occur.

8 MS. JONES: Al, we used to have a lot of  
9 exchange arrangements and peak sharing  
10 arrangements with the Pacific Northwest because  
11 they were a winter peaking system. That gets to  
12 the first bullet up there.

13 To what extent are there still contracts  
14 with the northwest that take advantage of that  
15 seasonal diversity?

16 MR. ALVARADO: Actually I don't know of  
17 any actual seasonal exchange contract that's  
18 actually in place. Now, I have heard that there  
19 has been some conflicts with some of the existing  
20 arrangements that some parties are trying to  
21 resolve between each other.

22 But, again, this is a lack of actual  
23 information of these types of actual contract. I  
24 don't know of any that are actually in effect,  
25 similar to the ones that had been negotiated and

1 signed back in the early '90s.

2 MS. JONES: And I had another related  
3 question on the northwest power pool. You  
4 indicated in the paper that they have projected  
5 reserve margins of 48 percent. And to what extent  
6 is that? Because they're a winter-peaking system?

7 MR. ALVARADO: I have a slide, later on,  
8 over here that talks about it. But the main  
9 answer to that is it's a hydro system, and a hydro  
10 system has -- the reserve margins are based on  
11 dependable capacity. And there is a lot of  
12 capacity there.

13 They're energy limited, so we, you know,  
14 we try to estimate more of the actual electricity  
15 that can come out of that system.

16 So, I do that the northwest power pool  
17 reserve margins, that's basically the cause, it's  
18 a hydro system.

19 However, to the point that you were  
20 making, Melissa, I just wanted to point out that  
21 the reason why we have these transactions between  
22 California and other out-of-state areas is because  
23 of these diversity opportunities.

24 The difference between California and  
25 the northwest system is the northwest system is

1       predominately a hydro system, where most of the  
2       generation occurs in the spring and early summer  
3       period. Yet their peak demand typically occurs  
4       during the wintertime. So the hydrogeneration is  
5       better more in line with California peak demands,  
6       as well as peak demands throughout the rest of the  
7       west.

8               So this is what I mean about diversity,  
9       you know. That creates large opportunities for  
10      electricity trades between the different regions  
11      in the west.

12             There's also a large surplus of  
13      generation capacity in the west. There was a  
14      surplus in the southwest a number of years ago  
15      when they had over-built their generating capacity  
16      with large baseload coal plants. Well, demand has  
17      increased with time and what we discovered over  
18      this last five years is there's been a lot of new  
19      additions, generation additions throughout the  
20      west. And that's pushed the reserve margins up  
21      again.

22             This chart illustrates the types of  
23      generation that has occurred over the last two  
24      decades, actually the last decade here. In the  
25      early 1990s and -- actually in the '90s very

1        little new additions were made in the southwest.  
2        Yet we find just between 2001 and 2005 that, you  
3        know, quite a few new facilities have been added;  
4        and the majority of those facilities that have  
5        been added in the southwest are natural gas.

6                The same goes for the northwest system.  
7        Back in this last five years a lot of new natural  
8        gas generation has been added. There's been new  
9        wind generation, some geothermal and a small  
10       amount of new coal has been added, also, to the  
11       northwest system.

12               This slide goes to illustrate the  
13       reserve margins for 2004 and the projected reserve  
14       margins for 2006 and 2008. The blue shows the  
15       reserve margins for the northwest being, you know,  
16       approaching the 50 percent mark. For the desert  
17       southwest for 2004 the reserve margins look to be  
18       about 35 percent dropping as load increases in the  
19       next several years, still hovering around 30  
20       percent.

21               When you average out the reserve margins  
22       then between the northwest and other regions in  
23       WECC the average reserve margin for whole WECC  
24       still is relatively high, 30 percent I would  
25       consider to be a high reserve margin.

1                   And this part contributes to the surplus  
2                   generation that facilitates the type of wholesale  
3                   market transactions that occur in the west.

4                   So, I'm going to go into the proposed  
5                   methodology to estimate imports. First, we do  
6                   intend to identify -- well, we actually have  
7                   identified existing generation from ownership  
8                   shares, as well as we have information on the  
9                   long-term power purchase contracts and  
10                  entitlements.

11                  We are assuming that all of this out-of-  
12                  state generation owned by California utilities is  
13                  used to meet California electricity demand. I do  
14                  think that this might overestimate actual  
15                  deliveries to California mostly because some of  
16                  these utilities that have this ownership share, in  
17                  itself, do have large reserve margins, themselves.

18                  And there are also going to be system  
19                  conditions such as LADWP operations they must  
20                  maintain generation inbasin for transmission  
21                  stability reasons. And that could limit the total  
22                  amount of actual energy, electricity they might  
23                  need, to meet their customer loads. And in  
24                  effect, they may be selling power in the market,  
25                  too.

1                   But, for simplicity sake we're assuming  
2                   that all of that generation is attributed to  
3                   California loads.

4                   I indicated that we do know how much  
5                   power is coming in over the interties, so we  
6                   simply take a balance, subtract the ownership  
7                   shares and contracts from the total imports and  
8                   come up with the system purchases. And this is  
9                   the segment of the imports that we are applying  
10                  the estimate approach.

11                  This slide is just to indicate the  
12                  generation profiles of the ownership shares  
13                  located out of state. You'll see that it really,  
14                  the generation from these facilities do not vary  
15                  significantly from year to year. However, 2006  
16                  the bars will probably drop down another 7000,  
17                  8000 gigawatt hours since Mojave has just recently  
18                  been closed, has recently shut down.

19                  MS. JONES: Al, is this the same data  
20                  from the table that you have in the paper, that's  
21                  table 8, just displayed?

22                  MR. ALVARADO: It should be.

23                  MS. JONES: Okay. And there, if you  
24                  look at the numbers in the table, if you look at,  
25                  say, Four Corners, while you have 5400 megawatts



1 in 2005, you'll notice that in 2002 they dipped to  
2 4468, so that's about 1000 gigawatt hours  
3 difference.

4 And I'm wondering if you know why that  
5 generation from that plant dropped, if we're  
6 assuming that these are being run as baseload  
7 facilities. And, again, if you look at Palo Verde  
8 you see that in 2002 there was a little over 8400,  
9 where in 2005 there's 7000, just above 7000.

10 So those were the most glaring sort of  
11 differences I saw in the tables; and I'm wondering  
12 to what extent you understand why there are those  
13 differences.

14 MR. ALVARADO: Actually, I personally  
15 don't know. I do have a number of our staff here.  
16 Karen Griffin.

17 MS. GRIFFIN: I can answer on Palo  
18 Verde, which is obviously a nuclear unit. There  
19 are three units there at the facility. Unit 1 has  
20 been down a great deal of the time. First, it was  
21 for a refueling outage, and so for the nuclear,  
22 between every 18 and 24 months you're going to  
23 have that outage problem.

24 They have had a great deal of problem  
25 with Palo Verde ever since 2004. That's unit 1.

1 And it's been not operating a good bit of the  
2 time. But when Palo Verde, when it's not on  
3 forced outage it's always running full out.

4 MS. JONES: And I guess that still  
5 leaves the question about Four Corners.

6 MR. ALVARADO: I don't have an answer  
7 right now, Melissa. I can check on that and get  
8 back to you at a later time.

9 MS. JONES: Thanks.

10 COMMISSIONER GEESMAN: Well, let me ask  
11 it. How does either situation, either the outage  
12 issue at Palo Verde or whatever the explanation is  
13 at Four Corners, how does that affect your  
14 modeling results?

15 MR. ALVARADO: Well, I'll go to this  
16 next slide. What it's going to do in terms -- it  
17 just reduces the amount that would be imported  
18 from those firm resources. So we have to then  
19 estimate what the system imports are, whether it's  
20 partly, you know, -- let's see, how do I respond  
21 to this. It just changes the system imports that  
22 we need to evaluate at this point.

23 ASSOCIATE MEMBER PFANNENSTIEL: But, Al,  
24 I thought you took those contracted amounts as a  
25 given and so while we can look in retrospect and

1       see that the amounts weren't up to what we assumed  
2       they would be under the contract, how would you  
3       have brought that into the model? I thought that  
4       we would just have taken those.

5               MR. ALVARADO: Well, what we do in our  
6       estimate is we do take recorded actual generation  
7       from those facilities. And those are the  
8       estimates that we're identifying here on the third  
9       line as firm imports.

10              What we're trying to do here is looking  
11       at the actual generation and actual power flows,  
12       and whatever becomes the unknown we have to then  
13       make an estimate on the mix of those, the actual  
14       power flows.

15              MS. JONES: Then I guess the question  
16       that I'm trying to get at is there is a variation  
17       between 2001 -- the historic data from 2001 to  
18       2005. And how is that variation in the amounts  
19       that those plants are actually run factored into  
20       the model?

21              MR. ALVARADO: So, you're focusing more  
22       on the model. Angela Tanghetti is our chief  
23       modeler, and I think maybe she can have some  
24       response to that.

25              MS. TANGHETTI: This is Angela

1       Tanghetti. What we try to do is take historic  
2       forced outages and take the average of those, over  
3       a certain amount of years, and incorporate them  
4       into the model simulation. So we do put a forced  
5       outage and a maintenance outage rate on all those  
6       generating plants you see there. And we try to  
7       update them regularly as soon as we get better  
8       data on what their forced outage or maintenance  
9       outages were.

10               MS. JONES: So you have actual data from  
11       all the different plants, not aggregate numbers?

12               MS. TANGHETTI: When we do have  
13       individual plants' forced outage rates we try to  
14       average those over a certain number of years. If  
15       we don't have that type of data then we do use  
16       aggregation amounts.

17               MS. JONES: And about how many of the  
18       facilities do you have actual data for? What  
19       proportion --

20               MS. TANGHETTI: I'd have to look and  
21       see. I can't say that off the top of my head.

22               COMMISSIONER GEESMAN: What's a certain  
23       number of years?

24               MS. TANGHETTI: Off the top of my head I  
25       don't think I could say that, either. I know, you

1 know, for -- no, I'm not going to say that, I'll  
2 stop --

3 COMMISSIONER GEESMAN: Okay.

4 MS. TANGHETTI: It differs for all of  
5 them, how they're reporting and what we think is,  
6 you know, good years to look at when they've  
7 reported; and some data is iffy, so it's not  
8 consistent for all of them.

9 COMMISSIONER GEESMAN: And what about  
10 your update cycle?

11 MS. TANGHETTI: We try to do that  
12 quarterly. We buy those from Global and they  
13 provide those quarterly to us.

14 MR. ALVARADO: I'd also like to add  
15 that, you know, we have been trying to mine  
16 different resources to try to understand, you  
17 know, what exactly is going on with forced outage  
18 rates.

19 I understand that some of the forced  
20 outage information's being reported to the PUC.  
21 We're in discussions with the PUC Staff to see if  
22 we can work out an exchange agreement so we can  
23 share some of this information, help us improve  
24 our modeling characterization of all these  
25 facilities, too.

1                   So this table just tallies up the firm  
2           imports from all the ownership shares and the  
3           known contracts. The total imports is the  
4           information that's reported to us. We know the  
5           power flows over the interties. Subtract one from  
6           the other and that will give us the system imports  
7           that we need to try to estimate.

8                   And this just illustrates that the  
9           actual mix between firm and system purchases is  
10          almost half and half overall. The types of  
11          transactions from the northwest seems to be mostly  
12          system imports that we can estimate. And from the  
13          southwest most of those ownership shares are  
14          located in the southwest region. So you'll find  
15          more imports from those ownership shares than what  
16          would be estimated as system imports.

17                   Related to the mix of system imports,  
18          electricity is typically traded between many  
19          market participants, day-by-day, hour-by-hour, and  
20          because for that reason it's really difficult to  
21          actually track the beginning point of those  
22          transactions and actual delivery to a population  
23          center.

24                   The system purchases are generally  
25          supplied by surplus electricity generation. And

1       because of the different mix of resources from  
2       both the northwest and the southwest, we approach  
3       the northwest somewhat differently than the  
4       southwest.

5               This is just to give you a snapshot of -  
6       - now, this is reported net imports, and this is  
7       intended to represent the imports that do not  
8       include all the ownership shares and firm  
9       contracts. So I would call this -- represent this  
10      as the system imports.

11             And as you'll see, the imports system  
12      purchases do vary from year to year. The dip in  
13      2000 and 2001 I guess we know that due to the  
14      energy crisis there was a number of different  
15      abnormal type of behavior that was occurring, but  
16      on top of that in 2001 there was a drought in the  
17      northwest.

18             And, again, this is reported to be net  
19      imports. And during 2001 we found out that there  
20      was probably five times the amount of exports that  
21      typically occur from year to year. So a lot of  
22      power was actually sold or delivered out of state,  
23      too, during the energy crisis.

24             We are assuming that the marginal  
25      generation resources are used for electricity

1 system imports. Generally utilities and  
2 generators will typically use their cheapest  
3 electricity supply to meet customer obligations.  
4 These baseload generation facilities are lower  
5 cost resources, and most of these baseload  
6 facilities are also owned by utilities. The  
7 remaining surpluses are generally the marginal  
8 generation resources. And it's these resources  
9 that will be sold in the market.

10 COMMISSIONER GEESMAN: You know, that  
11 all sounds right and I hope it works that way.  
12 It's kind of like markets being efficient, or  
13 economic decisionmakers being rational. But I  
14 think it would go over a little more persuasively  
15 if you could correlate it to specific plant  
16 operating data, or specific transmission flows, or  
17 specific import profiles among LSEs.

18 Because without any of those intervening  
19 data-intensive showings, you're left with a  
20 theory. A rational theory, hopefully a compelling  
21 theory, but a theory.

22 MR. ALVARADO: I agree, Commissioner  
23 Geesman. I mean we are mining different data  
24 sources; we are trying to see if there are any  
25 correlations with information that is available.



1 In many cases this will come down to the best  
2 assessment, as professionals who have been working  
3 in this field for over 20, 25 years.

4 This area, this gray area of uncertainty  
5 is also why, you know, we are here today. You  
6 know, we are seeking, if any other parties do have  
7 better information, better studies can help us  
8 clarify this one gray area, you know, I'm very  
9 open to any suggestions.

10 MS. JONES: Al, can I ask a question  
11 about the marginal generation. How do hydro  
12 conditions affect what's on the margin? Because  
13 if the northwest plans for adverse hydro, and then  
14 you assume that marginal generation takes the, you  
15 know, fills up the gap, what happens when you do  
16 have a wet year? And therefore a lot of the  
17 imports are from hydro. How do you account for  
18 that?

19 MR. ALVARADO: Well, this is why we do  
20 distinguish the northwest from the southwest. And  
21 the next few slides I can get into, I'm going to  
22 focus first on the southwest, but, you know, we  
23 have examined hydro generation patterns in the  
24 northwest and try to correlate that with actual  
25 imports from the northwest region. And we do see

1       that hydro generation and northwest imports track  
2       pretty closely. So I can illustrate that in the  
3       next few slides.

4               Part of the basis for evaluation on what  
5       are the likely marginal generation resources that  
6       are serving the market, we did conduct some  
7       simulation studies to identify which resources are  
8       likely setting the market clearing price  
9       throughout the whole WECC region.

10              We've run these simulations to see what  
11       the generation is from hour to hour for one target  
12       year. And what we have found, after subtracting  
13       out generation in California, there are some  
14       generation facilities in California that had been  
15       in the margin, but overall in the Western  
16       Electricity Coordinating Council region, minus  
17       California, we find that natural gas generation is  
18       on the margin about 96 percent of the time.

19              And we've also found that coal  
20       generation is on the margin approximately 4  
21       percent of the time. And the hours that coal's  
22       been in the margin have been usually during the  
23       evenings and weekends.

24              COMMISSIONER GEESMAN: Now, those  
25       numbers are westwide or are those northwest or

1 southwest only?

2 MR. ALVARADO: This is westwide, minus  
3 California.

4 COMMISSIONER GEESMAN: And is there an  
5 argument that if you modeled the two subregions  
6 separately you might come up with different  
7 results?

8 MR. ALVARADO: I'll turn to my modeler  
9 here.

10 MS. TANGHETTI: Minor correction there.  
11 These simulation results here that you see the 96  
12 and the 4 percent are looking at imports from the  
13 southwest into California.

14 COMMISSIONER GEESMAN: Okay.

15 MS. TANGHETTI: What's on the margin  
16 there. So that's a correction.

17 COMMISSIONER GEESMAN: Okay. And you're  
18 basically making then the same conclusion about  
19 the northwest. But you modeled the southwest and  
20 you're assuming the same holds true with the  
21 northwest?

22 MS. TANGHETTI: No. They're using a  
23 different consideration for the northwest.

24 COMMISSIONER GEESMAN: Okay.

25 MR. ALVARADO: Well, with these modeling

1 results to come up with these estimates of what's  
2 on the margin, we are proposing to apply these  
3 factors to the imports, the system purchases from  
4 the southwest. So we would assume that 96 percent  
5 of the system purchases coming across the  
6 interties is gas-based, and 4 percent of the time  
7 it would be coal-based.

8 COMMISSIONER GEESMAN: So where did  
9 Sempra find the coal to meet 29 percent of its ESP  
10 load?

11 MR. ALVARADO: Well, then --

12 COMMISSIONER GEESMAN: And if the other  
13 ESPs, for competitive reasons, might feel that  
14 they need to emulate that pattern, where would  
15 they find the additional coal?

16 MR. ALVARADO: Again, that's where I  
17 don't have any information on what Sempra actually  
18 reported and the nature of that transaction, or  
19 what is the basis for that.

20 The last bullet here I indicate that the  
21 northwest imports does require different  
22 consideration, pretty much for the questions,  
23 Melissa, you've been asking about.

24 Before I go to the northwest I just sort  
25 of want to illustrate the point about the

1 different types of generation that exist  
2 throughout at least the southwest region.

3 What we've done here is we've developed  
4 a load duration curve for Arizona for both 1993  
5 and 2008. The purple curved line represents the  
6 hourly loads, total loads in Arizona, you know,  
7 each hour throughout 1993. And then it's sorted  
8 in terms of magnitude.

9 So in the earlier - near the x axis we  
10 have a peak demand there; that usually represents  
11 the peak demand that occurs on a hot summer day.  
12 And as we move down the curve is the electricity  
13 demand during different hours throughout different  
14 periods. As we approach the end of the curve it's  
15 usually during the evenings and offpeak periods.

16 The cross-bars are, we don't have  
17 information on all the actual hourly generation  
18 and of all facilities in the west to actually fill  
19 up the actual generation below the demand curve.  
20 What we're providing here is the generation with  
21 an assumed dependable capacity and we stack this  
22 according to the general cost of the different  
23 resource types.

24 So the lower blue bar is the hydro  
25 generation capacity in the southwest, in Arizona.

1 Nuclear is next in the stack; coal is the  
2 lavender, purple bar. And then on top of that we  
3 have the gas and distillate generation capacity.

4 And this here is to illustrate that  
5 assuming that generation is dispatched according  
6 to resource cost, any generation that's above this  
7 load duration curve could be considered to be  
8 surplus in that region and could be sold to the  
9 spot market.

10 Back in 1993 there was quite a bit of  
11 surplus coal-fired generation and this actually  
12 factored into our assumptions for the resource mix  
13 of imports from that region.

14 COMMISSIONER GEESMAN: But you don't  
15 have hourly data to corroborate that?

16 MR. ALVARADO: That's correct. We don't  
17 have the actual hourly generation for all of the  
18 facilities to actually build the actual, the  
19 resource mix for this one state, or a combination  
20 of all the western states.

21 COMMISSIONER GEESMAN: And even the  
22 graph as it is, is an average of the entire  
23 calendar year? So presumably your load duration  
24 curve varies over, you know, over all 8760 hours,  
25 does it not?

1                   MR. ALVARADO: The actual generation  
2           could be. The actual coal generation could be far  
3           less than this, or you will find that, you know,  
4           large facilities do shut down for planned  
5           maintenance for a large period of the year.

6                   This is simply just to illustrate the  
7           point about what could be a surplus within a  
8           region here. The demand curve, it is actual  
9           information. All the other generation is  
10          estimated. And, again, it's to illustrate.

11                  And the point that I wanted to make here  
12          is more comparing Arizona in 1993 compared to what  
13          could be occurring in 2008. The demand curve has  
14          shifted up, has almost doubled since 1993. And  
15          you'll see that the curve has, and since there has  
16          not been any major coal additions in this part of  
17          the southwest region, this curve has jumped up  
18          above the coal generation capacity. It shows that  
19          there could be some coal, surplus coal during  
20          these offpeak periods, usually evenings, weekends  
21          and the sort. But, again, these are just average  
22          estimates.

23                  But more to the point, it shows that  
24          with all the new gas additions in the southwest  
25          region, what used to be coal -- coal used to be

1 the likely resource on the margin serving  
2 wholesale power market transactions. What's  
3 happening now is gas is likely more on the margin.

4 MS. JONES: And, Al, let me ask a  
5 question about how you came up with the 2008  
6 results. Did you assume a uniform gas price in  
7 your model between California and the whole rest  
8 of the region?

9 MR. ALVARADO: This isn't actually, this  
10 is not really a model, you know. What we do have  
11 is an estimate of the load -- we have a demand  
12 forecast and the load profile to come up with the  
13 demand curve, the generation here, you know, it is  
14 stacked according in general on known costs of  
15 these facilities. But the estimated generation  
16 here is not the result from a modeling run. It's  
17 just an assumed average dependable capacity.

18 MS. JONES: And is that installed in  
19 Arizona? Is that southwest-wide?

20 MR. ALVARADO: This illustrative chart  
21 is just for Arizona.

22 Now, to illustrate the differences  
23 between types of generation, I know this is a very  
24 busy chart here. But what we wanted to compare is  
25 the generation of a large baseload coal facility



1 with a newer gas-fired combined-cycle unit.

2 The two that we're comparing is the  
3 Intermountain Power Generating Station and the  
4 Desert Basin combined cycle unit. What this chart  
5 illustrates is just the percent of -- each line  
6 here is, or point on the graph here is the percent  
7 of maximum output of each facility hour-by-hour.

8 This is an example of the type of hourly  
9 information we do have. We have it for some  
10 facilities, not for every facility.

11 So the yellow shows that this combined  
12 cycle unit does vary hour by hour; jumps up to  
13 almost, well, 100 percent of their highest  
14 generation during that year. But it just really  
15 ramps up and down hour by hour depending on what  
16 their demand is for that one facility. Whether  
17 they can sell into the market or they're  
18 responding to daily load fluctuations.

19 Compared to the operating profile of a  
20 coal-fired facility which generally operates at a  
21 steady capacity factor throughout most hours of  
22 the year. It dips down in the spring when they  
23 shut down some of the units for planned  
24 maintenance. And occasionally you'll see some  
25 blue points that drop down to 50 percent in other

1 times of the year. And that's likely due to some  
2 sort of forced outage that might have occurred in  
3 that coal facility.

4 COMMISSIONER GEESMAN: Is Desert Basin a  
5 utility plant or a merchant plant?

6 MR. ALVARADO: As our staffer indicated,  
7 it is a merchant plant, but we don't know what the  
8 nature of the contract transactions are about.

9 MS. JONES: And then I have another  
10 related question. I think in the paper you refer  
11 to these as typical facilities. I'm wondering how  
12 this compares with the operating profiles of other  
13 individual plants and whether you've done that.

14 MR. ALVARADO: I actually do have a  
15 handful of other slides. I could probably find  
16 them in here. Would you care to see some of  
17 those?

18 COMMISSIONER GEESMAN: I'd like to see  
19 at least the coal plant.

20 MR. ALVARADO: Okay. I'm going to fast  
21 forward through here and see if I -- this is the  
22 hourly profile for Four Corners during 2004. So  
23 you can see that it's likely down for maintenance  
24 in January through May; and does vary up and down  
25 occasionally. But then during the majority hours

1 of the year -- I'm sorry -- there you go, thank  
2 you, Jim.

3 So, you'll see that during periods as we  
4 approach summer when there is a higher demand for  
5 electricity, that Four Corners operates at a  
6 pretty consistent capacity factor and will drop  
7 down. I can't explain the reason why this  
8 particular facilities jump down during some times  
9 of the year, certain hours.

10 This one is the hourly output for the  
11 San Juan facility. Again, certain higher capacity  
12 factor during a number of times of the year, with  
13 occasional ramping up and down and likely forced  
14 outages that occur.

15 The Mojave Generating Station.

16 COMMISSIONER GEESMAN: And those were  
17 all plants that had significant California utility  
18 ownership interests?

19 MR. ALVARADO: Right. We were trying to  
20 at least understand how these plants have been  
21 operated; and likely make up the mix of the power  
22 that's coming over the interties.

23 COMMISSIONER GEESMAN: Do you have any  
24 for plants that do not have that California  
25 utility ownership interest?

1                   MR. ALVARADO: I don't have one here  
2                   today, but we can dedicate some staff to come up  
3                   with similar charts.

4                   COMMISSIONER GEESMAN: I'm trying to  
5                   avoid requesting new work.

6                   MS. TANGHETTI: Everything we have read  
7                   has said (inaudible) increase in the last decade.

8                   MR. ALVARADO: Angela.

9                   MS. TANGHETTI: From what we've read  
10                  across the industry they say that the utilization  
11                  factor of coal plants, not only in the west, but  
12                  throughout the United States, has increased in the  
13                  past decade. So we've noticed those trends  
14                  everywhere.

15                  COMMISSIONER GEESMAN: And do you know  
16                  from what level to what level?

17                  MS. TANGHETTI: I think the level now  
18                  they're saying is about 85 percent utilization  
19                  factor. And I'm not sure what that's increased  
20                  from over the past decade, but that's what we've  
21                  read.

22                  MR. ALVARADO: Okay, now I'll jump into  
23                  the northwest system. The northwest system does  
24                  operate differently than the southwest, mostly  
25                  because, as we discussed before, it is

1       predominately a hydro system.

2               I'll jump to the next chart.

3               COMMISSIONER GEESMAN: Well, let me take  
4       you back to those last two bullets.

5               MR. ALVARADO: Okay.

6               COMMISSIONER GEESMAN: If I add the last  
7       three bullets it looks an awful lot like the  
8       southwest results other than a 50 percent hydro  
9       assumption. Are those separately modeled results  
10      that get you the 46 and the 4? Or is that just  
11      injecting a 50 percent hydro factor into the  
12      previously modeled results?

13              MR. ALVARADO: Exactly, yes. That is  
14      what we were doing. So the 4 percent coal is part  
15      of the marginal analysis we did. What I am  
16      injecting here is the 50 percent assumption that  
17      half of the imports of the northwest is hydro  
18      based. And the 50 percent estimate here is my  
19      estimate. And it could be higher; it's likely  
20      higher during a very wet year in the northwest.  
21      And it could be much lower if it's going to be a  
22      dry year.

23              For this one snapshot, for this next  
24      several years, I assumed it to be 50 percent.  
25      And, again, this is my estimate.

1                   ASSOCIATE MEMBER PFANNENSTIEL: That,  
2 Al, is a pretty enormous assumption for your  
3 results.

4                   MR. ALVARADO: Yes.

5                   ASSOCIATE MEMBER PFANNENSTIEL: And so I  
6 guess I'd like to talk about it a little bit. Is  
7 your assumption based on past knowledge? Based on  
8 reports from somewhere? Where's the 50 percent  
9 coming from?

10                  MR. ALVARADO: Well, let me go to this  
11 slide, the next two slides. Because what we're  
12 trying to do here is try to find what is the  
13 actual correlation between hydro generation in the  
14 northwest and imports. And what's illustrated  
15 here is the purple-pink recorded hydro generation  
16 estimates over here seem, just visually seems to  
17 track the actual imports from the northwest since  
18 1983.

19                  There are some wide variation imports  
20 that could be due to market variations. But what  
21 we did was conducted a correlation of the data  
22 points between 1993 and 2003, and we find that the  
23 correlation is pretty high.

24                  ASSOCIATE MEMBER PFANNENSTIEL: But that  
25 doesn't mean that that power that's being imported

1       is hydro power. It could mean that because  
2       there's a lot of hydro power that's satisfying the  
3       needs in the northwest, and other generation is  
4       coming to California. That's the connection I'm  
5       having trouble with.

6               MR. ALVARADO: Well, the way the  
7       northwest system does operate, or at least I'll  
8       start out with how they plan to meet firm power  
9       loads. The Bonneville Power Administration  
10      assumes that -- conducts their planning effort  
11      assuming that only the firm power that can come  
12      from the hydro system, if there was a critical  
13      water year. I mean the worst water year condition  
14      that they've experienced. That is the maximum  
15      amount that they will count from their hydro  
16      system for their firm power supply and demand  
17      balances.

18             And based on the generation that comes  
19      from that critical water, then if they find that  
20      they're confronting a potential shortage of  
21      generation for firm power to meet their firm power  
22      needs, then comes in the need to add new  
23      generation of the southwest.

24             Now, the critical water condition  
25      occurred, I believe it was 1937, somewhere in that

1 area. I don't have the probability distribution  
2 about what is the likelihood of that occurring  
3 again, but -- now I'm going back to institutional  
4 knowledge here, when I did conduct these  
5 correlations studies we did find that on average  
6 actual hydrogeneration was significantly above  
7 that critical water for a good part of the many  
8 years.

9 And anything that's generation above  
10 that critical water is pretty much surplus in the  
11 region. The BPA customers can buy that power.  
12 It's considered nonfirm power because it's  
13 unpredictable power. Northwest customers have  
14 first call on that power, then it's open to the  
15 market.

16 COMMISSIONER GEESMAN: And you're  
17 characterizing the R-squared of .67 as a pretty  
18 good correlation?

19 MR. ALVARADO: Yes.

20 COMMISSIONER GEESMAN: Okay.

21 MR. ALVARADO: So, based on this  
22 correlation showing how hydro system does track --  
23 the hydro generation and imports do seem to track  
24 close to hand-in-hand, this is really the basis of  
25 the 50 percent number.



1                   COMMISSIONER GEESMAN: Tell me why I  
2 shouldn't be concerned about these two vertical  
3 axes. They both measure gigawatt hours and  
4 they're pretty strongly skewed from a scale  
5 standpoint. I think if they were on the same  
6 scale your dark blue or black line would be close  
7 to imperceptible at the bottom of the graph.

8                   MR. ALVARADO: That would be true. And  
9 we are talking about significant larger amounts of  
10 hydro generation. And the correlation is intended  
11 to capture that difference, at least. To show  
12 that despite that difference in scale there is  
13 still a correlation between the fluctuations in  
14 generation and imports.

15                   We conducted similar studies back in the  
16 early 1990s for the electricity reports. And what  
17 we ended up, at least the Commission had ended up  
18 deciding in their findings for the Electricity  
19 Report was that given these types of correlations  
20 that 80 percent of the power coming from the  
21 northwest was assumed to be hydro back then.

22                   So my 50 percent estimate here is quite  
23 a bit conservative if we're going to compare to  
24 the assumption we used back in the 1990s. Of  
25 course, new generation has been added in the

1 northwest, and most of it's all been gas-fired.

2 And that's why we're making the assumption that  
3 after we assume a fraction that imports from the  
4 northwest to be coal, the balance is gas-based.

5 COMMISSIONER GEESMAN: What does the net  
6 system power averaging methodology produce?

7 MR. ALVARADO: Let me see. I'll go to  
8 one of my earlier charts. For 2005 the resource  
9 mix in the northwest was assumed to be 64 percent  
10 hydro.

11 COMMISSIONER GEESMAN: Okay, so it's  
12 somewhere in between your early 1990s Electricity  
13 Report approach and your current 50 percent  
14 assumption?

15 MR. ALVARADO: Right.

16 So, I'm coming down to the bottomline  
17 here. Once we've identified the resource mix of  
18 all the generation that we can identify, the  
19 ownership, the contracts, and we use the scaling  
20 factors for what's assumed to be part of the  
21 system purchases, this is pretty much -- this is  
22 the result that we will get for both the northwest  
23 and the southwest.

24 So, in the northwest you'll see that the  
25 imports, the resource mix for the imports, 48

1       percent of it is assumed to be hydro based; 44.1  
2       percent assumed to be natural gas. But in the  
3       southwest, mostly because of all the ownership  
4       shares, you'll see that coal has 54.4 percent of  
5       the total mix coming in from the southwest. Next  
6       largest fraction is going to be natural gas. And  
7       then there's the nuclear portion.

8               If I compare this to the methodology,  
9       the averaging methodology that was used for the  
10      net system power report, the main difference with  
11      these import totals is that I'm using total  
12      imports as opposed to net imports.

13             If you look at the southwest it will  
14      show that using the averaging methodology that a  
15      larger portion of the imports from the southwest  
16      would be coal, using this accounting methodology.

17             To take this one step further, if we  
18      compared the total resource mix for California,  
19      using the proposed methodology compared to the  
20      methodology just used for the net system power  
21      report, which is the averaging, this shows the  
22      differences and the total resource mix for  
23      California.

24             So, starting at the top of the stack,  
25      coal with the new methodology, proposed

1 methodology, would be about 14.3 percent of the  
2 total mix, compared to 20.1 percent.

3 The next largest fraction would be  
4 natural gas; is showed natural gas assumption  
5 increase, the mix increases from 37.7 percent with  
6 net system power import to 43.

7 Nuclear is pretty much the same.  
8 Renewables doesn't change because the renewables  
9 counted in the net system power report is what's  
10 in California.

11 This pretty much wraps up at least our  
12 proposed methodology. We do think that this  
13 proposed methodology would be a little more  
14 accurate than assuming that the average generation  
15 that occurs in the western regions is actually the  
16 equivalent mix of the, if we want to tag the  
17 electrons coming over the interties.

18 If this proposed methodology is adopted,  
19 then we will apply this methodology to estimate  
20 and calculate the associated greenhouse gas  
21 emissions that would be part of the inventory that  
22 Gerry Bemis is responsible for.

23 With that, I'm open for comments,  
24 questions.

25 COMMISSIONER GEESMAN: I had two last

1        questions.  In terms of the modeling that  
2        determined natural gas was on the margin 96  
3        percent of the time, and coal 4 percent of the  
4        time, what heat rates did you use for the  
5        respective plants, and what fuel price  
6        assumptions?

7                MS. TANGHETTI:  We used block heat rates  
8        for all the plants, five block heat rates that we  
9        had available.  Again, based on historic --

10               COMMISSIONER GEESMAN:  So you didn't  
11        attempt to model each plant within the region?

12               MS. TANGHETTI:  Oh, no, we did model  
13        each plant within the region.  And each plant  
14        within the region, if, if, such as a coal plant,  
15        has five different blocks of heat rates.  So we've  
16        -- and, again, that's something that we constantly  
17        refine.  So we did model each plant heat rate  
18        separately.  We didn't make some broad-brush  
19        assumptions about --

20               COMMISSIONER GEESMAN:  Okay.

21               MS. TANGHETTI:  -- full load heat rates.  
22        And then the gas prices, fuel prices were the  
23        latest CEC Staff price forecast for gas prices.  
24        And we've had an update of the coal prices in  
25        there, as well.

1                   COMMISSIONER GEESMAN: But those are  
2                   forecast values, not actual --

3                   MS. TANGHETTI: They're forecast values.

4                   COMMISSIONER GEESMAN: And they hold  
5                   constant over the course of the year?

6                   MS. TANGHETTI: There's seasonal  
7                   variations with the gas prices, as well as the  
8                   coal prices.

9                   COMMISSIONER GEESMAN: And no variation  
10                  among plants, it's a single regionwide assumption?

11                  MS. TANGHETTI: No. The way the gas  
12                  prices, we have them modeled in the west as our  
13                  natural gas office provides them. In California,  
14                  very detailed regions. There's a couple prices  
15                  within PG&E, a few prices --

16                  COMMISSIONER GEESMAN: Yeah, I'm not  
17                  talking in California, I'm talking outside  
18                  California.

19                  MS. TANGHETTI: Outside of California we  
20                  used the natural gas office price forecast for  
21                  regions outside of California, as well. And they  
22                  do model different parts of Arizona with different  
23                  gas prices, so there is variation among the other  
24                  regions outside of California, as well.

25                  COMMISSIONER GEESMAN: Okay, thanks.

1                   MR. ALVARADO: Sure. Please come on up  
2                   to a microphone here, and please identify  
3                   yourself.

4                   MR. LASHGARI: Hi. I'm Ash Lashgari;  
5                   I'm from California Air Resources Board. I've  
6                   sort of intended most of my life to stay away from  
7                   emission inventory for a great many good reasons.

8                   But nevertheless, I think the  
9                   fundamental assumption you have, which is rather  
10                  troubling to me, is that a coal-fired power  
11                  plant's CO2 emissions, wherever that coal-fired  
12                  power plant might be, is rather similar to another  
13                  coal-fired power plant that you might find so far  
14                  as CO2 and black carbon is concerned; or so far as  
15                  methane, or whatever else that might be a concern.

16                  You know, that's not necessarily so.  
17                  Now that's a real real serious problem. Now, I  
18                  understand from the perspective that we are  
19                  operating currently we really don't have emission  
20                  profiles for CO2 and black carbon that we might  
21                  have, say, for example, for NO2 or SOx or ROGs or  
22                  various other things.

23                  But doesn't that concern you somewhat?

24                  MR. ALVARADO: I would turn -- the  
25                  section that we're doing over here really is

1       trying to get at least an operating profile of the  
2       mix of imports. I agree, there probably is going  
3       to be variation between one power plant and the  
4       other, but at this point we're even having  
5       difficulty in coming up with a reasonable  
6       granularity about, you know, which of those  
7       facilities, other than the ones we've identified  
8       as ownership, is coming in.

9               I'm not sure exactly what emission rate  
10       assumptions are used, you know; my part of the  
11       equation here is to try to figure out how much  
12       generation occurs. Our air quality folks then  
13       take the generation estimates and try to convert  
14       that into estimated emissions.

15              MR. LASHGARI: This was actually kind of  
16       a trick question. I apologize for putting it to  
17       you in that fashion. But what I'm suggesting is  
18       that your paradigm is wrong. Okay.

19              See what I'm saying is there are two  
20       different ways of building emission inventories.  
21       One is top down; the other one is bottom up. Your  
22       paradigm is top down, okay. Your paradigm is  
23       attempting to say let me make certain assumptions  
24       and assuming a uniform emission profile or some  
25       kind of emission profiles, then I can put them all



1 together.

2 What I'm suggesting is that there's  
3 substantial dangers associated with this kind of  
4 attempt. And some of those were presented to you.  
5 Because you're required to make so many  
6 assumptions, and if any of those significant  
7 assumptions are wrong, your entire emission  
8 inventory could be out of whack for a significant  
9 amount.

10 So what I'm suggesting is that the  
11 paradigm you're following, the rubric you're  
12 following has significant problems associated with  
13 it. Recognize that I know almost nothing about  
14 what you do, okay, which basically makes my  
15 analysis of what you just so sagely presented not  
16 too valuable. But from a perspective of a  
17 skeptic, or a person who's looked at emission  
18 inventories, somewhat.

19 Now, what I'm suggesting is there may be  
20 a different approach, not for this round, not for  
21 this set of procedures that we're making forward,  
22 but there may be a different approach to take a  
23 look at it.

24 Let's think about it in this fashion.

25 Is it possible for us to say that for every

1 gigawatt of energy that you sell across a  
2 transmission line, or for every gigawatt of energy  
3 that you purchase and you sell, you should also  
4 purchase and sell the CO2 and black carbon  
5 emissions that go with it. Something to think  
6 about. Thanks.

7 MR. ALVARADO: Thank you. Actually I  
8 would agree; if there is a way of actually  
9 tracking or putting some sort of carbon tags on  
10 each transaction that could --

11 MR. LASHGARI: Well, add a carbon tax --

12 MR. ALVARADO: A tag, not a tax, --

13 MR. LASHGARI: Yes, a tag, yes, yes.

14 MR. ALVARADO: -- a tag. Yes.

15 MS. WANG: Good afternoon; my name is  
16 Devra Wang; I'm here today on behalf of the  
17 Natural Resources Defense Council. I'd like to  
18 commend the Commission for its work on this very  
19 important topic, and in particular the staff in  
20 putting together a really excellent report.

21 We found the new methodology to be very  
22 interesting and well thought through, but we have  
23 a number of additional questions and issues that  
24 we would encourage the Commission to address  
25 before adopting this new methodology.

1                   We understand that the methodology  
2           that's currently being used might over-estimate  
3           the amount of coal that's being imported into  
4           California. But our analysis of the new  
5           methodology that's being proposed today is that it  
6           appears to be overly conservative, that is it  
7           appears to probably under-estimate the amount of  
8           coal that's being imported. For a couple of  
9           reasons.

10                   So I'd just like to raise some of the  
11           issues and questions, that we came across in  
12           reading the report, for your consideration.

13                   The first is that the methodology  
14           proposes to assign each resource fuel type a  
15           percent of the net imports based on a simulation  
16           of the market clearing price. And to assume that  
17           the imports are only coal, when it's coal that's  
18           setting that market clearing price.

19                   But this appears to under-estimate the  
20           amount of coal because, for example, if there are  
21           time periods when California's importing both coal  
22           and natural gas, the gas would be setting the  
23           market clearing price. But in this methodology  
24           only the gas would be counted. So you might have  
25           both of them, but we would be calling it all gas.

1       So that's one issue that we thought we wanted  
2       clarification on and should be looked at further.

3               The second issue that arose as we looked  
4       through this is the load duration curve that you  
5       presented for Arizona shows that there is likely  
6       excess coal available for nearly half of the hours  
7       in the year, which implies that there's some  
8       availability of this excess coal during both the  
9       shoulder periods as well as during the offpeak  
10      periods. So, again, this would imply that the  
11      system purchases may include coal, even if it's  
12      both coal and gas, for more than just the 4  
13      percent of the hours in the year.

14             The third issue is really a question  
15      that was addressed a little bit earlier, and that  
16      is whether there is a way to obtain more detailed  
17      information about the timing of the flows on the  
18      transmission ties to the southwest.

19             It seems that getting more information  
20      about the timing of those flows would really help  
21      determine what types of generation are most likely  
22      being used during those different time periods.

23             And then finally, and again this was  
24      brought up briefly earlier, even though the report  
25      notes that California doesn't need to purchase

1 energy during many of the offpeak periods, I  
2 didn't see a discussion in the report about  
3 whether it's cheaper to be importing power during  
4 the offpeak periods, and therefore California is  
5 importing that power, even if technically we don't  
6 necessarily have a need for it. So I was hoping  
7 to hear a little bit more discussion about whether  
8 that part of the analysis could be addressed  
9 further.

10 So, again, thanks for addressing this  
11 very important issue, and for the opportunity to  
12 raise these questions. And we look forward to  
13 continuing to work with you as you refine the  
14 methodology. Thank you.

15 PRESIDING MEMBER BOYD: Thank you,  
16 Devra.

17 MR. McCORMICK: Good afternoon; I am  
18 Mike McCormick with the California Climate Action  
19 Registry. I, too, would also like to express my  
20 support for this inventory work, and the new work  
21 on the proposed methodology.

22 I have a question regarding -- a  
23 clarification question generally. The method is  
24 based on the assumption, as I understand it, that  
25 the unit that sets the market clearing price

1 provides the marginal electricity that is then  
2 sold to California.

3 And, so therefore, I believe, under this  
4 methodology that the electrons that are traveling  
5 from Arizona, for example, to California could  
6 also reasonably be considered to be from these  
7 units. And I think this might be similar to the  
8 question from NRDC. And so the analysis shows  
9 that these electrons come ultimately from a  
10 natural gas plant.

11 I'm trying to make that jibe with how I  
12 understand the grid and the system to work. Now,  
13 certainly while the price charged by APS, for  
14 example, to California may be the market clearing  
15 price, and the price for their customers may be  
16 based on the baseload plants, the actual  
17 electrons, that the flow of the electrons that  
18 come from Arizona to California, as I understand  
19 it, is a homogenous mix of all the electrons that  
20 are on the grid, that is that the Arizona -- so  
21 the electrons are coming out of Arizona into  
22 California.

23 And the way that the grid works, those  
24 electrons are a homogenous mix of all the coal  
25 plants, all the natural gas plants, all the hydro

1 and nuclear. So, to assert that this flow of  
2 electrons is specifically from a natural gas  
3 plant, that's what I'm hoping for a little  
4 clarification from -- not at this time,  
5 necessarily, but as the methodology moves along.

6 Generally speaking we support this work  
7 and we believe, as an organization that conducts  
8 bottoms-up inventories, we believe that a top-down  
9 analysis has a lot of value for California, CEC,  
10 the EPA and the state generally. Thanks.

11 MR. ALVARADO: Just to your point, I do  
12 agree from an engineering perspective. Electrons  
13 will flow on the path of least resistance from an  
14 engineering perspective. And it would be really  
15 difficult to try to distinguish one source from  
16 the other.

17 But the next leap that we're trying to  
18 make here is trying to associate actual generation  
19 with transactions. And that's where we try to  
20 come up with the resource mix. The resource mix  
21 is to better represent the types of transactions  
22 that are occurring.

23 MR. KELLY: Steven Kelly with the  
24 Independent Energy Producers Association. I'm  
25 going to try to approach this from a different

1 perspective, and connect the dots, because I find  
2 this fascinating.

3 The conclusion is that the imports, I  
4 guess, are more gas-based and therefore have a  
5 less of an emissions profile than what you  
6 previously modeled. And it just dawned on me,  
7 you've got a situation where the market clearing  
8 price in California is pretty much established by  
9 natural gas units, I believe.

10 You have a very high reserve margin in  
11 the southwest, which is a function of the fact  
12 that they've got a lot of additional gas units  
13 that have come online over the last 10, 15 years.

14 But fundamentally, the gas plants that  
15 have been built in California and in the southwest  
16 are relatively the same kinds of units. They all  
17 have basically the same kind of heat rates. And  
18 the only difference is probably the transmission  
19 from Arizona to California.

20 And what you're suggesting, I think, is  
21 that the gas units in the southwest, plus the cost  
22 of transmission, are effectively either setting  
23 the price in California or competing successfully  
24 against the natural gas-fired units in California  
25 to warrant them being the import.



1                   And given the high reserve margin in the  
2                   southwest, if I was located in the southwest and  
3                   trying to offload my high reserve margin, I might  
4                   be using the gas locally and essentially exporting  
5                   my cheaper coal facilities to catch the market  
6                   clearing price in California, which is higher.

7                   It's just a theory. I don't know how  
8                   they do that, but it's a theory about why you  
9                   might actually have more coal resources coming  
10                  into California that are lower cost in the  
11                  southwest, to overcome the cost of transmission.  
12                  So I just ask that.

13                  The other thing that you might look at  
14                  that I find that might be important in this  
15                  analysis of going forward, particularly in light  
16                  of some of the work the PUC is doing, is to try to  
17                  identify what the marginal baseload unit is in the  
18                  southwest, or in the -- outside of California.

19                  The PUC, as you know, is looking at  
20                  performance-based standards tied to baseload  
21                  units. And I don't know what definition you're  
22                  using here for baseload unit. I don't think you  
23                  are necessarily. But it would be interesting to  
24                  know what is the marginal, least efficient  
25                  baseload unit that's being dispatched in the --

1 outside of California that is entering the mix;  
2 and from which you might derive a carbon emissions  
3 factor for.

4 So, two comments, and I don't  
5 necessarily have the answer for them.

6 MR. ALVARADO: Well, if I may respond to  
7 one of them. Well, on one side I do understand  
8 that most of the larger baseload facilities are  
9 owned by utilities, integrated utilities, in the  
10 southwest region; and a lot of the gas, new gas  
11 facilities are merchants.

12 And if you want to compare the  
13 generation from the new facilities compared to  
14 those in California, well California does also  
15 have a large number of older gas facilities that  
16 have higher heat rates and higher costs.

17 Let me see if I can find another one of  
18 my charts.

19 MR. KELLY: I think most of those  
20 operating under the RMR contracts, right? For the  
21 most part?

22 MR. ALVARADO: Some have --

23 MR. KELLY: Out of the market.

24 MR. ALVARADO: Some have RMRs. What I  
25 wanted to illustrate to this point here is a chart

1       that I had in the paper. I know this is rather  
2       difficult to see in the paper, itself, but what I  
3       was just trying to illustrate is that there is  
4       also an inverse relationship between the amount of  
5       hydro generation, which is the blue, the lower  
6       line, the blue, and imports. Compared to the  
7       amount of gas that's actually used for generation  
8       in California.

9                So you'll see that when hydro and  
10       imports tend to drop during parts of the graph  
11       here, you'll find a corresponding increase in gas  
12       demand for electric generation in California.

13               MR. KELLY: Is that gas coming from the  
14       northwest?

15               MR. ALVARADO: No, this is gas  
16       generation in California, itself.

17               MR. KELLY: Okay, just --

18               MR. ALVARADO: So the point here is that  
19       if there's more imports it's actually displacing  
20       gas-fired generation in California.

21               MR. KELLY: I would expect that. I mean  
22       I would think -- you were talking about the  
23       northwest -- I would think that the northwest  
24       hydro, here's another thought that I had when I  
25       listened to your presentation, was just for

1 purposes of discussion, let's presume that  
2 northwest hydro is a penny, and the northwest coal  
3 is two cents. If, I would presume in the  
4 northwest that when they have excess hydro they  
5 will consume the one penny resource locally, and  
6 export the two-cent stuff, if they can.

7 MR. ALVARADO: This is part of the  
8 dilemma, the difficulty trying to track all of the  
9 transactions.

10 MR. KELLY: Yes, I understand. So,  
11 thanks.

12 PRESIDING MEMBER BOYD: Where are those  
13 little electron tags?

14 (Laughter.)

15 PRESIDING MEMBER BOYD: Thanks, Steve.

16 MR. LAUCKHART: I'm Rich Lauckhart with  
17 Global Energy, a consulting firm. And we run the  
18 same models that your group does. We think  
19 they're great models. They're used across the  
20 world. Our data is very similar.

21 I'm here to talk a little bit about a  
22 little piece of this. And I wonder, Al, if you  
23 could turn to your page 10 -- your marginal  
24 generation study, the PowerPoint that said  
25 marginal generation, or whatever it is, on the top

1 of it. I think it was page 10 of your --

2 (Pause.)

3 MR. LAUCKHART: So, gee, that's not the  
4 one. Where was the one that you said they're  
5 going to use it for their own stuff first? There  
6 you go, use for electricity imports.

7 I spent 22 years working for Puget Power  
8 in resource planning and operations. And as was  
9 said here, we planned on critical water. So we  
10 had to have enough resources that when we had that  
11 drought year, the 1937 drought, that we had enough  
12 resource to meet our energy load for the year. We  
13 had excess capacity in our hydro system.

14 So, we were very short to meet our load,  
15 so we built coal plants and we built gas-fired  
16 combustion turbines. And normally we didn't need  
17 to run all of those resources because we very  
18 seldom had critical water.

19 Now, when we had excess water, just like  
20 this gentleman from IEP was saying, we assumed we  
21 were keeping that hydro for our customers. And if  
22 we didn't have a market, we would back down first  
23 the gas turbines, and then the coal plants. And  
24 we never got to the point where we had so much  
25 hydro that we were spilling and not selling if we

1        didn't have a market and backing down the coal and  
2        gas resources.

3                The load up there has grown so that the  
4        hydro isn't anywhere sufficient to meet the loads.  
5        So, I was wondering about this question, well,  
6        when the State of Washington guys are doing their  
7        GHG study, what are they going to assume about  
8        that hydro? Is that something they're allocating  
9        to themselves, and then any surplus coal to  
10       California? Or are they going to allocate, you  
11       know, 50/50?

12               And I suspect they're going to allocate  
13       all the hydro to the northwest. And at some point  
14       then the greenhouse gas emissions aren't being  
15       fully allocated.

16               So, it raises the question, you know,  
17       how are we going to do this counting. And one  
18       state can do accounting one way, and if the other  
19       state isn't doing it the same way, the sum of the  
20       parts doesn't equal the whole.

21               The other thing I want to just suggest  
22       here is with respect to this gentleman's question  
23       about, you know, the different coal units are  
24       putting out different emissions; different gas  
25       plants with different heat rates are putting out

1 different emissions, who's doing that calculation?

2 You know, the tool that you have here  
3 that you're using is fully capable of actually  
4 determining, well, how much imports is the  
5 northwest sending to California. Let's run that  
6 system hourly without those exports, and then run  
7 it again with those exports, and it will tell you  
8 hourly what plant is on the margin, what its  
9 emissions is.

10 So, there's another way to use the same  
11 tool, I think, maybe to get to some results that  
12 might -- leads to other concerns. That would be  
13 my thought.

14 MR. BARTHOLOMY: Hi, Obadiah Bartholomy  
15 with the Sacramento Municipal Utility District.  
16 First I'd like to say I really appreciate the fact  
17 that you guys have taken so much time to address  
18 this issue and running through models and trying  
19 to come up with the right answers. That's  
20 something SMUD feels is very important with the  
21 pending legislation in AB-32, and the work that  
22 the CPUC has done in looking at loadbased caps.

23 So, from the bottom-up perspective we're  
24 watching very closely in terms of what is assumed  
25 for the power that's coming into California and

1       that's not tagged to a specific purchase.

2               Just to start off, a couple of questions  
3       about the analysis. You said that all of the  
4       baseload, or most of the baseload units were owned  
5       by load-serving entity utilities in the southwest.  
6       And I'm not sure, I think you said the same thing  
7       in the northwest.

8               Are any of these utilities net exporters  
9       of power? Or are they all in some fashion or  
10      another net purchasers of power? I think if some  
11      of these utilities had more coal-fired generation  
12      than they had load, that might make that  
13      assumption that they usually use their lower cost  
14      baseload generation to meet their own load. That  
15      might cause some trouble there. So I don't know  
16      to what extent you've looked at the ownership on  
17      these specific units.

18              And then the second piece is you  
19      mentioned needing to have a consistent methodology  
20      from 1990 through 2004. So I'm wondering how  
21      you've addressed that. I see a lot of data for  
22      2005 and 2004. How have you addressed the  
23      changing dynamics in the market with the shift,  
24      the increase in the coal capacity factors and the  
25      addition of more natural gas combined cycle units?



1                   On a couple of items on the bottoms-up  
2                   approach concept. SMUD has been doing an  
3                   emissions inventory now, looking at this bottoms-  
4                   up approach for about three years. And we've gone  
5                   in great detail to try and quantify our  
6                   electricity purchases and the sources associated  
7                   with those purchases. And have found it pretty  
8                   difficult.

9                   About 50 percent of our purchases are  
10                  coming from sources that we can't specify to a  
11                  single origin. At the same time, within our  
12                  company we don't necessarily track whether the  
13                  load that's being served for our retail customers  
14                  is any different than the load that we send out to  
15                  our wholesale customers.

16                 So potentially some of our hydro  
17                  generation might end up on the wholesale market,  
18                  or some of our gas generation on the wholesale  
19                  market. We have no internal tracking that keeps  
20                  those two in separate bins. So I'm not sure if  
21                  SMUD is an anomaly in that case, but I wouldn't be  
22                  surprised if there are other utilities in the  
23                  southwest that have a similar thing, that people  
24                  that are buying and selling power are different  
25                  than the people that are generating power.

1                   And there's sort of different places  
2           that these folks reside within the company and may  
3           or may not follow the same set of rules as far as  
4           all of our hydro goes to meet our own load first.  
5           So that may argue for using the sort of an average  
6           value for system purchases. Just something to  
7           think about.

8                   And one more example is for these  
9           bottom-up purchases, for the California Climate  
10          Action Registry, there's a category called  
11          utility-specific purchases. And I'm anticipating  
12          there being some conflict as more and more of  
13          these utilities start registering their emissions  
14          inventories.

15                   One example is we make system purchases  
16          from a utility up to the north of us that has  
17          about 70 percent coal, and most of the rest of  
18          their system is natural gas.

19                   If we were to claim only natural gas in  
20          our purchases from them and leave them with the  
21          coal as the remainder, I think they might have  
22          difficulty when they go to register their  
23          emissions, as well. So just some thoughts on your  
24          overall analysis that hopefully will give you a  
25          little bit of a bottoms-up perspective.

1                   Thanks.

2                   MR. HATTON: Hello; my name is Curt  
3                   Hatton from Pacific Gas and Electric. And first  
4                   I'd like to commend the staff of the Energy  
5                   Commission on a lot of hard work. Clearly, you've  
6                   tried to do a good job.

7                   Just a couple of things. One is we  
8                   already have submitted some comments previously;  
9                   and I think those have been electronically  
10                  available.

11                  PG&E does agree with the new methodology  
12                  that looking at a -- first identifying sort of  
13                  ownership generation or specific plants where one  
14                  can identify specific tie between generation being  
15                  imported into California and a specific plant,  
16                  looking at that first and then trying to ascertain  
17                  what the emissions would be from the remaining  
18                  plants is a good methodology. And is superior to  
19                  just looking at average emissions rates being  
20                  spread across all specific imports.

21                  One additional point that I guess we'd  
22                  like to put out, and this goes to, and I think the  
23                  gentleman from SMUD also raised it, is that to the  
24                  extent that you were to apply this, or one would  
25                  want to apply this on an LSE-by-LSE basis, it

1 becomes more problematic in that the specific  
2 generation from some short-term purchases and  
3 things are -- it's tough to tie exactly imports  
4 and the amount of imports emissions from all  
5 sources of load and generation for each of the  
6 LSEs.

7 And the other last item here I'd like to  
8 point out is we'd like to point out that the CEC  
9 and the CPUC should coordinate to insure that the  
10 adoption of any methodology for calculating the  
11 GHGs associated with these imports accurately  
12 reflect, to the extent possible, the actual import  
13 profile on an LSE-by-LSE basis to the extent it's  
14 going to be applied to LSEs.

15 Thank you.

16 COMMISSIONER GEESMAN: Can I ask you if  
17 PG&E makes estimates of its electric generation  
18 diversity, or fuel diversity in its 10Q or 10K  
19 filings with the SEC?

20 MR. HATTON: Not that I -- I'm not  
21 specifically involved in that particular process,  
22 so I do not know what the answer to that is.

23 COMMISSIONER GEESMAN: If you would  
24 check back with someone at the company as to  
25 whether you do make such estimates, and if so,

1        what methodology that company uses to provide  
2        those estimates, I think it would be helpful to  
3        us.

4                MR. HATTON: That was the 10Q and which  
5        report?

6                COMMISSIONER GEESMAN: 10K and 10Q --

7                MR. HATTON: Okay.

8                COMMISSIONER GEESMAN: -- to the  
9        Securities and Exchange Commission.

10               MR. HATTON: Okay, thank you.

11               COMMISSIONER GEESMAN: Thanks.

12               MS. ANSAR: This is Jasmin Ansar and I'm  
13        with PG&E. I can respond to that question. No,  
14        we do not, not in the 10K. We do present -- we do  
15        certify our emissions with the Registry, and we  
16        also present estimates in our corporate  
17        responsibility report annually. But we do not at  
18        present register.

19               COMMISSIONER GEESMAN: And the corporate  
20        responsibility report is filed with whom?

21               MS. ANSAR: It's just something that's  
22        on our website and it's available --

23               COMMISSIONER GEESMAN: Okay, it's an  
24        internal document.

25               MS. ANSAR: -- it's an internal

1 document. But it is, you know, it's a public  
2 document, so anyone can go to our website and get  
3 it. It's at the corporation --

4 COMMISSIONER GEESMAN: And what  
5 methodology do you use for that report to  
6 attribute fuel sources to system purchases?

7 MS. ANSAR: The methodologies and the  
8 protocols that we currently adopt are those  
9 reflected with the Registry.

10 COMMISSIONER GEESMAN: Okay.

11 MS. ANSAR: Okay.

12 COMMISSIONER GEESMAN: Thank you.

13 MS. ANDERSON: Grace Anderson with the  
14 Energy Commission Staff. I just wanted to say a  
15 few things about the questions that were raised  
16 initially about working with the other states.  
17 And I will apologize to the staff, I'm going to  
18 put my western interconnection hat on, CREPSI,  
19 rather than my Energy Commission Staff hat.

20 This whole question of acting  
21 unilaterally versus multilaterally, you know, it's  
22 very important. And if there is any way that we  
23 can, at this point in the process, package up this  
24 material that you saw today; put it with, you  
25 know, even a draft staff paper including the

1 methodology and the results that are included in  
2 your slides, but not in your paper, that would be  
3 just helpful in principle.

4 Anytime we do act unilaterally it sort  
5 of sets us back in the other areas where we are  
6 trying to do more outreach. So that's especially  
7 important if we're trying to go in the direction  
8 of a regional emissions tracking system, or any  
9 kind of a cap-and-trade, the issues that Rich  
10 Lauckhart brought up are going to play out there  
11 in a large way.

12 So, put in a pitch for that. I  
13 certainly am happy if the staff wants to initiate  
14 some kind of effort like that. I'd be happy to  
15 facilitate it.

16 COMMISSIONER GEESMAN: You know, just  
17 speaking for myself, I really think that ought to  
18 be deferred until we have a new Chair, and a Chair  
19 that represents the Commission and the state to  
20 the other western state governments. I don't  
21 think that's a staff question. I don't think it's  
22 a question really for the Commissioners that  
23 currently sit on the Commission. I think that  
24 really ought to come from the top.

25 PRESIDING MEMBER BOYD: But nonetheless,

1 I think your suggestion probably will play well  
2 with folks in the future. But I was going to say,  
3 can you be thinking about the appropriate forum or  
4 forums for this to occur. And how, if we decide  
5 to move ahead with that, if a new Chairman or  
6 Chairperson does, how we might force an agenda  
7 item to discuss that.

8 MS. ANDERSON: I will do that. And  
9 obviously this issue is going to be with us for a  
10 long time. So I'm not sure of the exact purpose  
11 and direction for the methodology that's in front  
12 of you. How soon you have to make a decision.  
13 But there's always a time to do it, when that's  
14 possible.

15 Just a couple other kinds of comments.  
16 It's important that we document whatever modeling  
17 that we do, because the other states aren't sort  
18 of inside the California game. They have a harder  
19 time looking at a document when none of the  
20 figures have, you know, have references  
21 specifically.

22 So to the extent we can understand what  
23 the load forecasts are, for example, in future  
24 years, and those kinds of things, that's going to  
25 be really helpful to getting other people to do an



1 effective review.

2 Just in passing I would note that the  
3 2006 numbers from WECC are completed. They have  
4 been filed at NERC. Those would update the 2005  
5 ten-year coordinated plan summary numbers that are  
6 used here. My guess is that if we stick with  
7 2008, it's probably not going to materially change  
8 the application of the theory that the staff has.  
9 But it's always good practice to use the most  
10 current data. So to the extent you want to take a  
11 little more time to look at that information, that  
12 would be good.

13 The initial write-up of those results by  
14 the WECC Staff indicates that the generation  
15 additions reported between 2005 and 2006 are  
16 significantly less, lower, probably not for 2008,  
17 but it's still a useful thing to take a look at.

18 I just want to close by saying that if  
19 we're looking at 2006 and 2008 and applying this  
20 methodology for those years, for an inventory that  
21 goes from, say 1990 to 2006, then we're probably  
22 in pretty good shape.

23 But if this methodology is going to end  
24 up in a situation where it's a forecast ten years  
25 into the future that somehow is used to set caps

1 or other regulatory paradigms in other agencies'  
2 regulatory proceedings, then we probably want to  
3 be pretty cautious because looking forward in the  
4 WECC nobody knows what will happen with generation  
5 additions and how the system's going to operate.

6 But, you know, other places they are  
7 looking at a lot more -- wind as incremental  
8 additions, certainly over the course of the next  
9 ten years. So to the extent that affects what's  
10 on the margin because those plants are, you know,  
11 not going to be cheap, that's a factor to take  
12 into account applying the methodology going in the  
13 future direction.

14 And finally, the coal prices are  
15 important. There's a lot of flux in the west  
16 about coal contracts expiring; and the existing  
17 contracts are much cheaper than the ones that are  
18 likely to be signed going forward. And the  
19 transportation component of the contracts is very  
20 uncertain right now. So we should document that  
21 assumption well.

22 Thank you.

23 PRESIDING MEMBER BOYD: Thanks, Grace.

24 No other folks want to say something?

25 Al, do you have anything more?

1                   MR. ALVARADO: No, not really at this  
2 point.

3                   PRESIDING MEMBER BOYD: Your timetable,  
4 which may be variable?

5                   MR. ALVARADO: I don't have a projected  
6 timetable right now. I mean there were a lot of  
7 good comments that were made today, very good  
8 questions and points that we would like to try and  
9 address.

10                  I do feel that we are taking somewhat of  
11 a baby step, even a baby step, a small step, to at  
12 least improve what we've done before. And there  
13 are many other analytical aspects that we can  
14 engage in to try to better characterize what  
15 actually occurs in the western system and imports.

16                  We'll probably talk to a number of you  
17 individually because you've made some good points.  
18 I'd like to explore some of those elements.

19                  As a timeframe, I think the only initial  
20 timeframe that's being guided now is the target  
21 for -- Karen Griffin, please.

22                  MS. GRIFFIN: Commissioner Boyd, you  
23 know that B.B. Blevins has made a commitment to  
24 the Climate Action Team that we would try to have  
25 our draft inventory available for public review

1       for the whole inventory at the end of July. This  
2       is an element that feeds into the inventory. So,  
3       either if the inventory date slips that would be  
4       one thing. But if you want to maintain that  
5       commitment, then whatever we decide on this needs  
6       to be decided in sufficient time that Gerry can  
7       weave it through the whole inventory.

8               PRESIDING MEMBER BOYD: You did say it  
9       was B.B.'s commitment, right?

10              MS. GRIFFIN: Yes.

11              PRESIDING MEMBER BOYD: Yeah, I'm  
12       painfully aware of that. I'm also aware that the  
13       work that's going on here today is Commission  
14       generated, Commission Staff, Commission generated.  
15       And I would say coincident with that that the  
16       Climate Action Team report does call for, while it  
17       wrestles with the issue of inventories in the  
18       future and who's going to be in charge, it does  
19       wrestle with the need for bottoms-up/top-down  
20       inventory, and does recommend that this agency,  
21       indeed, work on the top-down inventory in that  
22       process. So I guess this is initial work in that  
23       arena.

24              I'd also say I commend the staff for,  
25       you know, for what they've done. And it was good

1 to hear that you got some commendations from folks  
2 out there who realize how difficult this is, as  
3 well as some good suggestions. You got commended  
4 for having the courage to step out and explore;  
5 and you got boxed around a little bit on some of  
6 the issues which I think are good points.

7 But I think we all heard some helpful  
8 input that really makes me nervous about that July  
9 timetable.

10 But nonetheless, I guess I would  
11 caution, say, remember those who had the courage  
12 to step out of the -- away from the mouths of the  
13 caves are susceptible to the saber-tooth tiger  
14 once in awhile. So, this isn't going to be  
15 simple; this isn't going to be easy.

16 And I'm painfully reminded by today's  
17 good discussion of previous discussions about  
18 these kinds of things. And I'm sorry the  
19 gentleman from the ARB left before he heard some  
20 of the other comments made today.

21 But there's the huge debate out there  
22 about cap-and-trade, and without taking any  
23 position on that, it's terribly predicated upon  
24 good data, good inventories, good accounting  
25 methods, and good accounting systems, et cetera,

1 et cetera. And from what I've heard today, which  
2 is very reminiscent of what I heard in the air  
3 quality business, we have a ways to go, as they  
4 did, and still do.

5 And this is going to be a tough one, for  
6 all the reasons that you stated, and other people  
7 stated. But every progressive step taken here  
8 just improves the body of knowledge. But I think  
9 we've learned some things about things to take  
10 into account, as well as I think Commissioner  
11 Geesman was right on earlier on to point out that  
12 we have got to do this in the context of what  
13 other people are doing around us.

14 And we'd better at least touch based  
15 with those folks. And it's certainly a good idea  
16 to see what's happened with regard to those who  
17 may have gone before us. And be it the EU or back  
18 there at RGGI or what-have-you to see if there are  
19 any lessons learned. And I think you heard all  
20 that today, so I think it's been very beneficial.

21 Do you have any plans for another round  
22 of public input, or what do you think you're going  
23 to do with what you hear and what you might digest  
24 from it, and what the next iteration might be, Al?

25 MR. ALVARADO: I don't have a proposal

1 at this moment. I think we're going to have to  
2 regroup and see what is actually needed for the  
3 first effort of updating the inventory and get  
4 back to our Executive Director and come up with a  
5 game plan.

6 PRESIDING MEMBER BOYD: Well, lured out  
7 one more comment.

8 MR. McCORMICK: Yeah, one final  
9 question.

10 PRESIDING MEMBER BOYD: This is a  
11 workshop, so --

12 MR. McCORMICK: Is the window still open  
13 for -- Mike McCormick with the California  
14 Registry. Is the window still open for written  
15 comments, or has that closed for good?

16 MR. ALVARADO: At least in the workshop  
17 notice we requested written comments by June 5th.  
18 We received only one set of comments. Personally,  
19 I think this is at the wish of the Committee, but  
20 any input to myself, as staff, I would welcome any  
21 written comments.

22 PRESIDING MEMBER BOYD: I would agree.  
23 This is still in a workshop mode, and if anybody  
24 wants to get some additional comments in, please  
25 do it. Do it quickly for the sake of staff, but

1 do it. We would welcome it.

2 COMMISSIONER GEESMAN: Is there anyone  
3 here from Southern California Edison?

4 UNIDENTIFIED SPEAKER: I'll speak on  
5 their behalf.

6 (Laughter.)

7 PRESIDING MEMBER BOYD: Al would be glad  
8 to hear that, too. Manuel might have some  
9 difficulties.

10 Anything else? Commissioners? Staff?  
11 Well, thank you, everybody. Appreciate the input  
12 and look forward to the future.

13 (Whereupon, at 3:55 p.m., the workshop  
14 was adjourned.)

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